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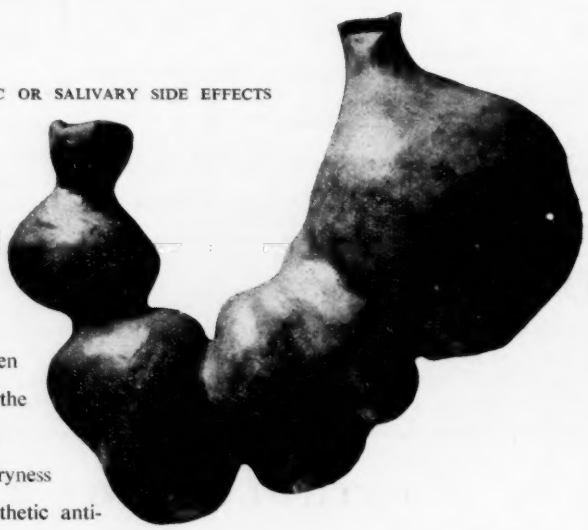

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CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ORIGINAL ARTICLES

The Evolution of Child Care — Prof. J. L. HENDERSON, F.R.C.P.E. 261

Assessment and Prognosis in Hemiplegia — G. F. ADAMS, M.R.C.P.; S. G. McCOMB, M.R.C.P.I. 266

Apnœa for Bronchography in Children — MARGARET E. BROWNE, M.B.; K. W. LOVEL, M.R.C.P.; COLETTE RAULIN, M.B.; JANET P. RICKARD, M.B. 269

Disseminated Sclerosis: Assessment of the Effect of Treatment on the Course of the Disease — NIGEL D. COMPSTON, M.R.C.P. 271

The Position of the Foot in Walking — MICHAEL HARTY, F.R.C.S. ... 275

Fatal Infection by *Chromobacterium violaceum* — P. H. A. SNEATH, M.B.; J. P. F. WHELAN, M.B.; R. BHAGWAN SINGH, M.B.; D. EDWARDS, M.R.C.P. 276

NEW INVENTIONS

A Bench Cold-box — A. F. MOHUN, M.D. 279

PRELIMINARY COMMUNICATION

Immunising Properties of a Urea-killed Tubercle Vaccine — C. N. ILAND, M.B. 277

LEADING ARTICLES

CORTISONE AND CORTICOTROPHIN IN BLOOD DISEASES 281

INEQUALITIES IN EDUCATION 282

ANNOTATIONS

Attack on Flies 284

Nose and Hand in Respiratory Infection 285

Respiratory Diverticula 285

Urinary Antibodies 286

PUBLIC HEALTH

Epidemic Poliomyelitis and its Prevention — MARGARET AGERHOLM, B.M. 287

Poliomyelitis 293

Estimate of Future Births 293

Infectious Diseases in England and Wales 293

LETTERS TO THE EDITOR

Prevention of Dust Diseases (Dr. Horace Joules) 297

The Problem of Peptic Ulceration (Mr. Stanley Aylett, F.R.C.S.) 297

Obesity (Dr. C. Hollins) 298

Endocrine Factors in Affective Disorders (Prof. H. C. McLaren, F.R.C.S.E.; Dr. R. T. Cooke) .. 298

Surgical Treatment of Varicose Veins (Dr. Stanley Rivlin) 299

The Kidney and Metabolic Disease (Dr. M. D. Milne) 299

REVIEWS

Notices of Books 279

SPECIAL ARTICLES

Treatment of Poliomyelitis 294

Central Health Services Council 295

National Assistance Board 296

IN ENGLAND NOW

A Running Commentary by Peripatetic Correspondents ... 296

OBITUARY

Mervyn Henry Gordon 300

Margaret Christine Tod 301

Thomas Blanchard Sellors 302

George Ernest Vilvandré 302

Robert Oswald Moon 303

John Pringle 303

Mr. Victor Bonney 303

NOTES AND NEWS

Figures from the Mental Hospitals 304

University of Oxford 304

Royal College of Physicians of London 304

Royal College of Surgeons of England 304

Appointments 303

Births, Marriages, and Deaths ... 303

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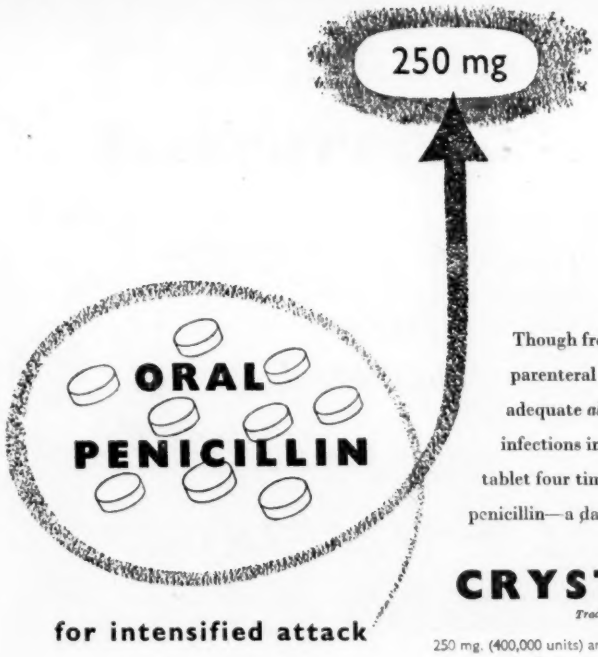

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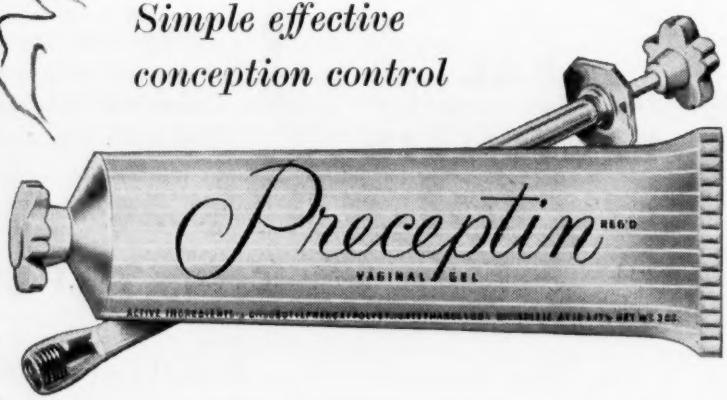

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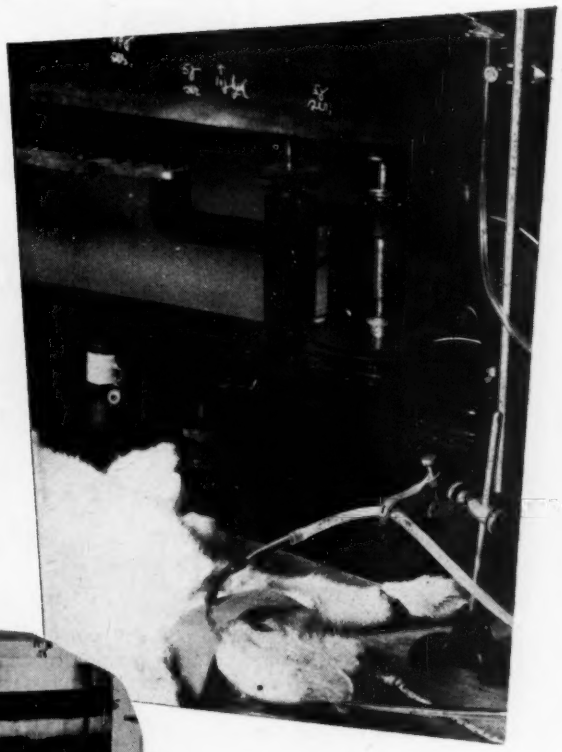

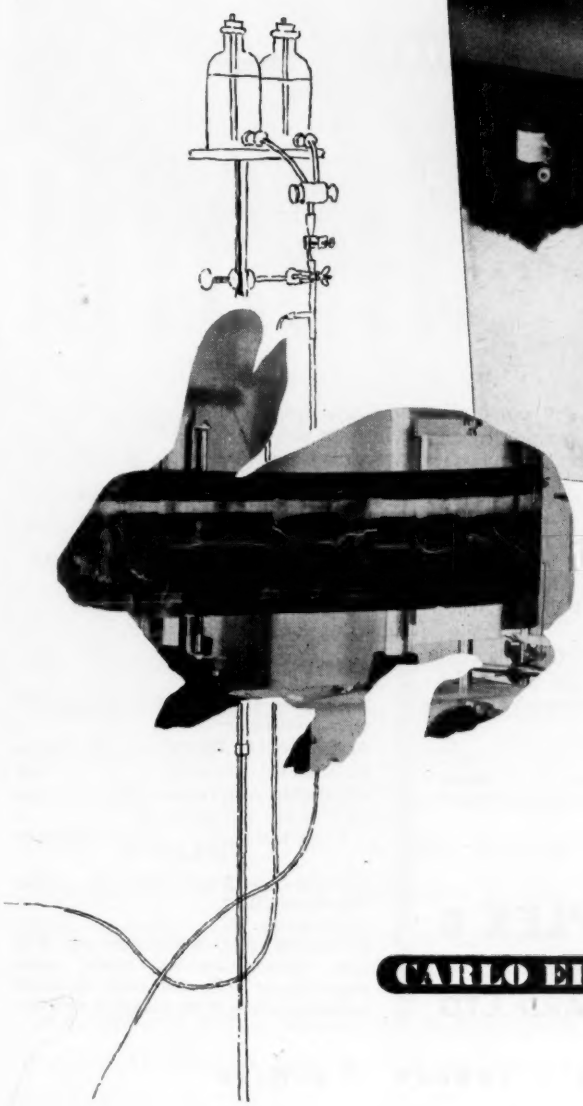

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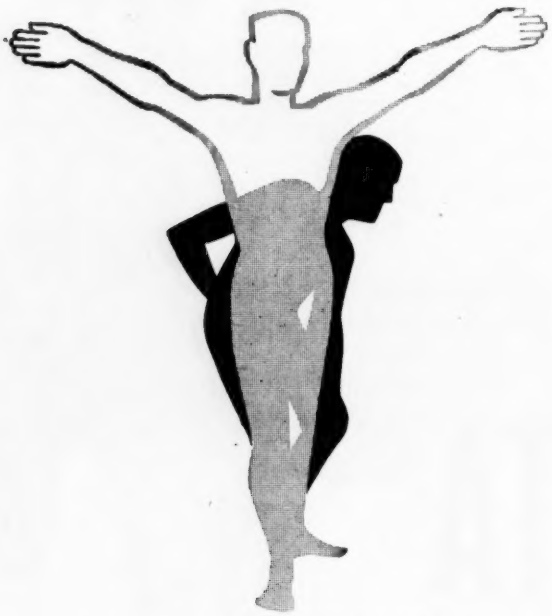

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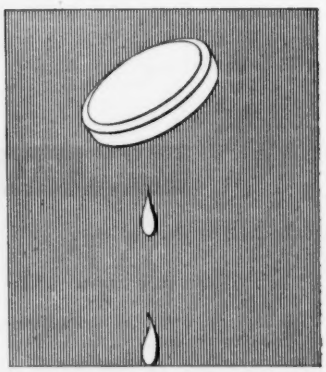
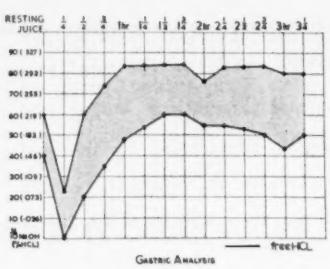
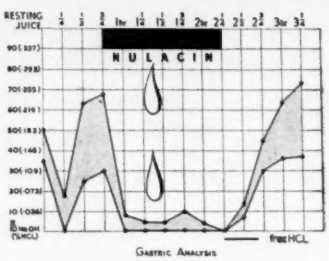




Superimposed gruel fractional test-meal curves of five cases of duodenal ulcer.



Same patients as in Fig. 1, two days later, showing the striking neutralizing effect of sucking Nulacin tablets (3 an hour). Note the return of acidity when Nulacin is discontinued.

REFERENCES: British Medical Journal, 180-182, 26*th July*, 1952
Medical Press, 195-199, 27*th February*, 1952

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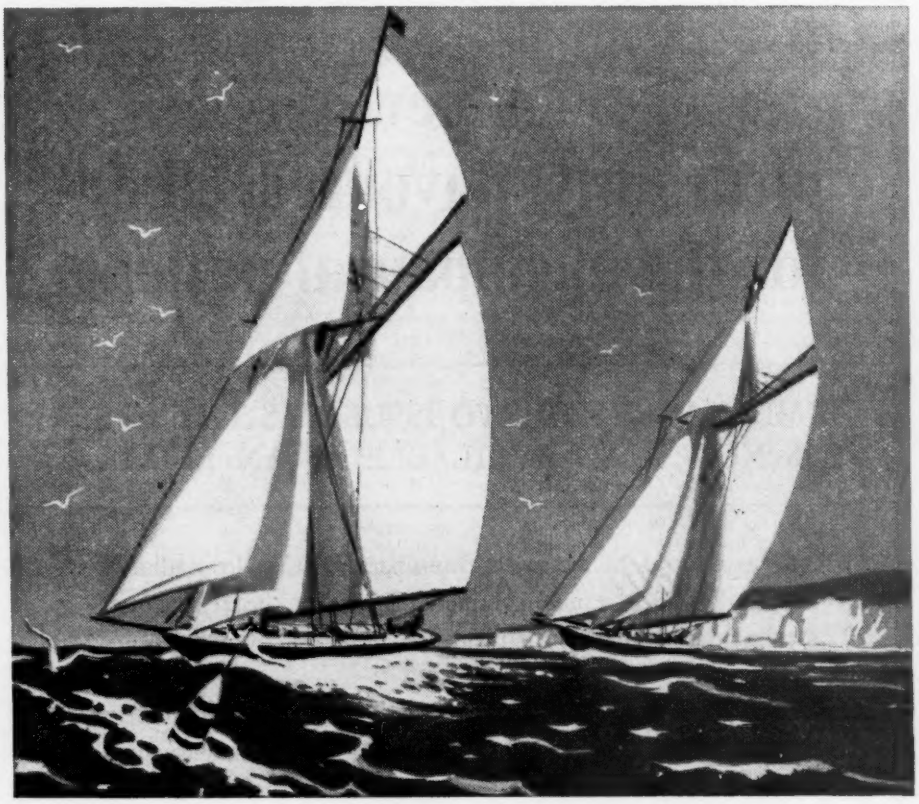

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THE EVOLUTION OF CHILD CARE *

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THE story of the evolution of child care is the story of the evolution of civilisation itself. In primitive society the welfare of children receives scant attention, because the struggle for existence is paramount, and the weakest inevitably go to the wall; infanticide, ritual sacrifice, and mutilation are the rule, and girls invariably have a harder fate than boys. In ancient times children born in a matriarchal society were indeed fortunate. They were well cared for in the matriarchal civilisations of Egypt and Babylon, India and China, but were less secure in the later patriarchal civilisations of Greece and Rome. In the old almost stationary civilisations of China and India the deposal of the primordial matriarchy was accompanied by a decline in the status of children; in India infanticide and the selling of children into slavery were customs which followed this social change, and in China the subservience of children and the sacrifice of female infants date from the time of Confucius, who fostered the principles of male ascendancy.

Economic factors have always played a fundamental rôle in the attitude of society to child life, though the force of the impact of unfavourable economic circumstances on the child varies with the degree of civilisation; the child is the first to suffer in primitive society, but the last to do so in modern Christian communities.

Child Care in Ancient Times

Among the early civilisations the most enlightened pædiatric doctrine was found in the Brahmin culture of Ancient India. The Hebrews took great care of their children, but under their stern moral and religious code the child's life was restricted by a variety of inhibitions, many of which were later incorporated in Christian doctrine. Knowledge of ancient Jewish pædiatrics is mainly derived from the *Talmud*. At birth the child was rubbed with salt to toughen the skin and safeguard it from infections, and then wrapped in swaddling clothes. The customs of salting the newborn and wrapping in swaddling clothes, which were also practised in Ancient Greece and Rome, persisted in the civilised world until the 16th century.

In Sparta vigorous parentage was considered more important than conventional morality, and puny offspring were abandoned and allowed to perish. As in Ancient Egypt the children were not swaddled and grew up free and unconstrained in body and mind. Spartan nurses were famous for their skill and were popular in other countries. In spite of the practice of infanticide there is much evidence in Greek literature of affection for children, and child development was fostered by a great variety of children's games.

Hippocrates, the father of medicine, was the first writer on diseases of children, but Soranus of Ephesus, who lived several centuries later, in the 2nd century A.D., is usually regarded as the father of pædiatrics. He was, as far as is known, the first author of a treatise devoted to the care of children in health and sickness, and this proved to be the most remarkable and complete account of pædiatrics in antiquity.

The Romans were the first to enact laws for the protection of children and to assume communal responsibility for foundlings. The practices of infanticide and systematic destruction of female infants became very prevalent in the later corrupt period of the Empire, and laws were repeatedly passed to curb these evils.

The Influence of Christianity on Child Care

The teaching of Christ and the apostles exalted parenthood and childhood, and the Church established hostels for the care of abandoned children, the sick, and the poor; but the early Christians were often persecuted for protecting child life.

In the Dark Ages abandonment of children and selling into slavery were prevalent practices among the impoverished inhabitants of France, Germany, and Britain, but some of these children were rescued and brought up by the Church. Many foundling institutions were established on the Continent in the Middle Ages and a few in Britain. The outstanding contribution to child welfare during this long bleak period was the effort made by the Church to check infanticide, and to provide destitute and deserted children with food and shelter. In Britain after the dissolution of the monasteries there was a great increase of unrelieved poverty, and abandonment and neglect of children assumed alarming proportions.

The Renaissance

The challenging spirit of the Renaissance was a good augury for medicine. The feeling of emancipation gathered momentum in the 16th century, and flowered in the 17th when medical thought was revolutionised and the foundations of modern scientific medicine were well and truly laid by such men as Harvey, Sydenham, and Leeuwenhoek who were not satisfied with hypotheses, but learned to prove their theories by developing the experimental method.

Pædiatrics shared in the benefits of free thought, and much attention was given by the writers of the Renaissance period to the training and education of children. It is of interest that the first medical book to be printed in the vernacular, two years after the printing of the first medical book in Latin, was Metlinger's treatise on diseases of children which was published in German in 1473. The first and only book written by an Englishman on pædiatrics before the 17th century was Thomas Phaer's *Boke of Children* published in English in 1545. During this period about twenty books on pædiatrics were published on the Continent.

The 17th Century

It seems paradoxical that the 17th century, a period of great cultural progress during which children figured more prominently in literature and art, should have been notable for cruelty to children.

Rigorous laws were passed by the Parliament of Paris to curb infanticide and abandonment, with disappointing results, and conditions were appalling in foundling institutions where the children were neglected, easy prey to epidemics, and frequently heavily drugged with opium to keep them quiet. There was also a shameful trade in children who were purposely maimed and exploited as objects of charity, as in the later Roman period. To counteract these evils Vincent de Paul, who later became the patron saint of orphans, devoted his life to the rescue and care of abandoned and neglected children in Paris, and established a foundling institution there in the middle of the 17th century. But the doors were opened too wide, soon infants poured in from the Provinces, and 75% of them died within three months. The same difficulties arose and the results were similar in the London Foundling Hospital established in the following century (1740); and admission to the Dublin Foundling Hospital in the latter part of the 18th century, where over 99% of the infants died, almost amounted to a sentence of death.

The 18th Century

The infant-mortality rate became very high in the 18th century. Nevertheless, the progress of scientific and social medicine illuminated the horizon, whilst the

* Inaugural address in the new chair of child health, delivered on St. Valentine's Day, 1953.

extensive literature on pædiatrics and numerous advances in child care bore witness to the growing interest in children. Rosen von Rosenstein, a famous Swedish physician and professor of medicine at Uppsala, a man of progressive outlook, laid the foundations of pædiatrics as a specialty, and wrote a very important work on diseases of children and their treatment in 1765.

Frenchmen had the distinction of developing methods of care and training for the principal forms of physical handicap. In 1741 Nicholas Andry published the first book on orthopædics—*The Art of Correcting and Preventing Deformities in Children*: he wrote with authority for he was aged 83 years at the time. In 1749 Diderol was thrown into the Bastille for suggesting that blind children might learn to read and write by touch, but before the end of the century a National Institute for Young Blind Persons was established in France. In 1775 the first school for deaf mutes was established in Paris by l'Abbé de l'Epée who published a method of instruction a few years later.

Several Scotsmen—perhaps I should say London Scots—played a notable part in the evolution of pædiatric thought and practice in the 18th century. The most eminent was George Armstrong. He wrote a treatise on *Diseases most Fatal to Infants*, and in 1769 founded the first children's dispensary, the Dispensary for the Infant Poor, in Holborn. It soon became popular and Armstrong bore most of the expense himself. After Armstrong's day the work of the dispensary was carried on by another Roxburgh man, Andrew Wilson, but the good work languished from lack of public interest and the dispensary was closed within twenty years of its opening. William Buchan was another Scots pioneer: he was appalled at the high infant mortality, thought prevention more important than cure, advocated less and lighter clothing for infants, and recommended mothercraft instruction for girls. Finally, it is of interest to us in Dundee to recall the name of Patrick Blair, who practised in this city early in the 18th century, who was sentenced to death as a Jacobite in the rising of 1715 and pardoned because of his scientific distinction, and who a few years later published in the *Transactions* of the Royal Society the first account of the clinical features and morbid anatomy of pyloric stenosis in infancy.

Smallpox was still the principal cause of death in childhood in the 18th century. Rosenstein stated "that the smallpox carries off yearly the tenth part of Swedish children." The literature on the disease was enormous. Such widespread attention to the scourge had its reward and led not only to the discovery of effective immunisation against smallpox, but to the foundation of the new science of immunology. Immunisation against smallpox, by inoculation with variola virus obtained from a smallpox lesion, was introduced into England in 1718 from Turkey. It had been practised for forty years by the Circassians. This method was widely and successfully practised until it was supplanted by the immortal Jenner's brilliant discovery of the effectiveness and safety of immunisation with the virus of cowpox. Jenner's work was published in 1798 after twenty-three years of careful observation. How exemplary were the meticulous care and modesty of this great man.

MORTALITY IN CHILDREN UNDER FIVE YEARS OF AGE IN LONDON AND ITS ENVIRONS 1762–71

—	Total births	Burials under 2 years of age	Burials under 5 years of age
1762	15,351	8372	10,659
1763	15,133	8200	11,163
1764	16,801	7673	9699
1765	16,374	8073	9948
1766	16,257	8035	10,197
1767	15,980	7662	9449
1768	16,042	8229	10,670
1769	16,714	8016	10,061
1770	17,109	7994	10,121
1771	17,072	7617	9447

The increasing popularity of artificial infant feeding, and the growing practices of wet-nursing and baby-farming, which in turn fostered illegitimacy, caused an unprecedentedly high infant-mortality rate in the 18th century (see table), and led to a searching review of the traditional methods of infant feeding, both in Britain and on the Continent, by the leading pædiatricians of the day. As a result of chemical studies on the composition of milk in the second half of the century, the first rudiments of scientific practice in infant feeding began to appear, and authorities began to advocate that milk only should be given to infants in the first six months of life.

The 19th Century

In the 19th century, as in the 18th, the most notable advances in child care originated in France, though the German school of pædiatricians made notable contributions in the field of nutrition towards the close of the century, and established infant nutrition on a scientific basis. In 1853 Jacobi, a political refugee, escaped from Germany to England, and proceeded to the United States where he became the principal pioneer of pædiatrics in the New World.

Edouard Leguin began to study mentally defective children in Paris in 1837 shortly after special schools had been established for them in France, and a few years later he published recommendations for the education of backward children, and the management of the grossly defective.

The Welfare of School-children

In the latter part of the 18th century attention had begun to be paid to the harmful effect of close mental work and sedentary occupations on the health of the individual. Johann Frank who occupied chairs of medicine successively in Göttingen, Vienna, Wilna, and St. Petersburg, held views on hygiene far in advance of his time, and published the first systematic treatise on public hygiene. One volume was entirely devoted to the attitude which should be adopted by the State towards the care and education of children. His recommendations on school hygiene still ring true; with the single exception of school lunches every physical need of the school-child was considered. This most enlightened physician, who might be called the father of social medicine, exerted a profound influence on the broader aspects of medicine in his day. Nothing more was heard of the physical welfare of school-children for half a century. The founder of the modern system of the routine medical inspection of school-children was the famous Breslau ophthalmologist, Hermann Cohn, who insisted on the harmful effect of bad lighting, faulty desks, and poorly printed books on the eyes. He lived to see the first congress of school hygiene at Nuremberg in 1904.

The Science of Nutrition

In the 19th century the fundamental concept of disease remained fast-rooted in the anatomical lesion, but the idea that disorders of infant nutrition should be treated, not by drugs, but by correct diet, was gaining ground under the enlightened leadership of the German school of pædiatrics, and Jacobi in the United States. Rubner and Heubner in Berlin published their epoch making monographs in 1898–99 on the average daily food requirements of normal and atrophic infants. Infant nutrition continued to be the main interest of other famous German pædiatricians at the beginning of the 20th century, notably Czerny and Finkelstein, but their attempts to elaborate the solid facts established by Rubner and Heubner a few years earlier, led them on to the shifting sands of theory, and the advocacy of over-elaborate feeding methods. These elaborate feeding methods dominated pædiatric thought for a quarter of a century, but the need for them has been disproved in recent decades and they are no longer practised. In the early

decades of this century the supremacy of the German infant nutritionists was eclipsed by the American school of metabolists, led by Holt, Howland, Gamble, and Talbot, who established our understanding of feeding, nutrition and metabolic processes on a more logical, scientific basis.

The Evolution of Infant Feeding

Until a hundred years ago the vast majority of infants were fed by their own mothers, but since that time there has been a steady decline in breast-feeding coincident with a rising standard of artificial feeding. Today a majority of infants are receiving artificial feeding by the age of three months. In ancient times, and until artificial feeding began to supplant breast-feeding in the 19th century, wet nursing was the usual substitute for maternal feeding. It was fashionable among the well-to-do.

Cow's milk was used as a substitute for breast-feeding in Ancient Egypt but little more was heard of it until the 15th century in France and much later in England.

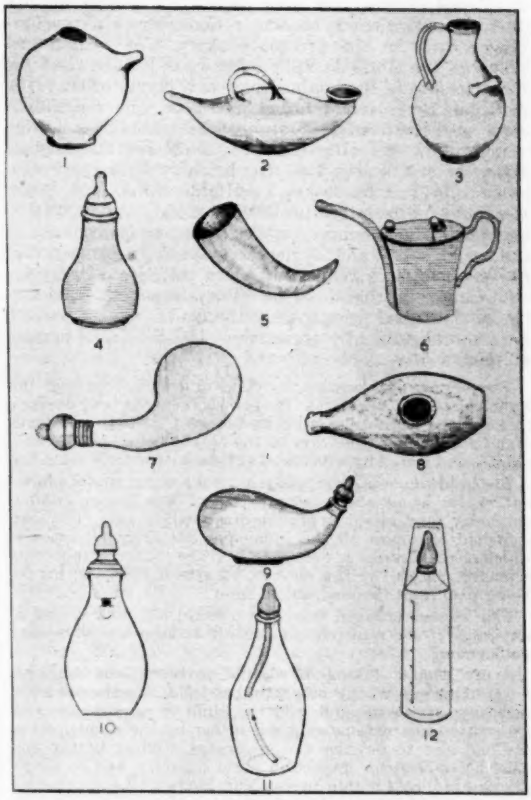

Fig. 1—The evolution of the feeding-bottle.

1–3.—Roman earthenware baby-feeders, in use until the 16th century.

5.—Cow's horn feeder, in use during the Middle Ages and until the 18th century.

4 and 6.—Pewter baby-feeders, 18th century.

7.—Baldini's (Italian) 18th-century feeder with sponge nipple.

8.—China baby-feeder, early 19th century.

9 and 10.—Glass feeding-bottles with ivory nipples. The rate of flow in 10 is regulated by a screwcap exposing one, two or three holes. French, middle 19th century.

11.—Glass feeding-bottle with rubber nipple and rubber conducting tube. French, middle 19th century.

12.—Glass feeding-bottle, modern Soxhlet type with inverted glass to maintain sterility of rubber nipple.

It is strange that such an excellent food as cow's milk should have been so little used until the latter part of the 18th century when the chemistry of milk began to be studied. Before that time, in default of a wet-nurse, infants were given cereal and water, with perhaps a few drops of milk, and no sugar, and of course most of them died from malnutrition.

The evolution of the feeding-bottle is illustrated in fig. 1. Regulation of the rate of flow from feeding-bottles has always been a difficult problem and many methods had a vogue before the introduction of the rubber teat in the middle of the 19th century. Pieces of rag, a finger of a glove, a cow's teat, and a piece of sponge (fig. 1, no. 7) were all used for this purpose, whilst some of the 18th-century pewter "bubby pots" had spouts with multiple small perforations at the tip. The tendency now is for rubber teats with too small a hole to be used and this also may cause digestive disturbances.

The Rise of Bacteriology and the Concept of Cross-infection

In the latter part of the 19th century the discoveries of Pasteur, Lister, and Koch brought about some striking improvements in practical pædiatrics. Epstein, in the '80s, introduced rigid aseptic procedures in the hygienic management of the wards in foundling asylums, and lowered the mortality in his Prague Foundling Asylum from 30 to 5%. In 1889 Grancher at the Hôpital des Enfants Malades, in Paris, introduced surgical asepsis in the children's wards, and his successor Hutinel, a few years later, constructed cubicles and practised the usual aseptic ritual of entry and egress. There was a great reduction of cross-infection, and these isolation cubicles were widely copied. Nevertheless, it has taken over half a century for the lessons taught by Grancher and Hutinel to become widely adopted in this country, and during this long period countless infant lives have been needlessly lost in hospitals. At the beginning of the 20th century pædiatricians played a leading part in the campaign for improved dairy hygiene; and immunology, which had advanced but little since Jenner's time, received a new impetus when von Pirquet, in 1907, introduced the cutaneous tuberculin test which is of great value in the diagnosis of juvenile tuberculosis.

Social Evils of the Industrial Revolution

The first half of the 19th century witnessed the worst social evils produced by the Industrial Revolution. The exploitation of women and children who worked long hours under bad factory conditions, and the increase of slum dwellings precluded any substantial reduction in the infant-mortality rate, or the attainment of satisfactory health and development of children living under such conditions. The public conscience was gradually awakened to the scandals of the period, and the writings of Dickens, Victor Hugo, and others, helped to disseminate knowledge of child neglect. In Britain, in the early part of the 19th century there were large numbers of homeless children running wild, and in the 1830s there were about 50,000 children living in workhouses, constituting almost half the inmates. Figs. 2 and 3 remind us of the appalling exploitation and suffering of little children in those days.

I would like here to tell you a story about a medical student of the London Hospital. In the 1860s, along with some fellow students, he established a ragged school for destitute children, and his experiences left an indelible impression on his mind of the misery of the homeless child. One night, accompanied by that great social reformer and philanthropist Lord Shaftesbury, he visited Billingsgate Fish Market, where 73 homeless children were found sheltering among empty fish-boxes and under tarpaulins. Lord Shaftesbury tried to persuade the medical student to abandon his intention to enter the foreign medical mission field, and to devote his life

Fig. 2—The chimney-sweep boy. Baxter's famous engraving "The Morning Call." (From the Ernestine Henry Collection, by permission of Dr. S. A. Henry.)

to home mission work. He was ultimately prevailed upon to change his mind, and with the financial support of a generous anonymous donor he established a home for 25 destitute boys. This was the first of many such homes. His name was Barnardo.

The principal evils affecting mothers and children in the 19th century were largely dispelled by a sequence of social reforms, most of which were enacted in the second half of the century, and by the foundation of numerous voluntary organisations to promote infant welfare.

The Maternity and Infant-welfare Movement

The foundations of the infant-welfare movement, which were mainly of French origin, were laid in the 19th century. John Davies who founded a children's dispensary in London in 1816 seems to have been the first to conceive the idea of the "health visitor." He organised a system of house visiting by "benevolently minded local ladies." Little is known about the results of this experiment, so it probably was not very successful. A similar organisation, the Ladies Reform Association, was established in Manchester in 1862 and this also had little success at first; but it immediately prospered when the "benevolently minded local ladies" were replaced by paid middle-class and working-class women with a more realistic appreciation of the problems of the families which they endeavoured to help. The organisation was so successful that it was recognised by Manchester Corporation in 1890 and thus became the first municipal organisation of health visitors. The system of house visiting by local-authority health visitors rapidly extended, and became general early in the 20th century.

In 1844 Marbeau, in Paris, founded the first day-nursery where working mothers could leave their cradles, and the practice soon spread to other Continental countries. In 1872 the Life Protection Act required registration, licensing, and inspection of all places where infants were farmed out from their parents. In the latter part of the 19th century, on the initiative of Switzerland, a series of laws were enacted for the protection of maternity forbidding the employment of women in factories for a statutory period before and after confinement.

In 1892 Budin, professor of obstetrics in the Paris faculty, established the first Well Baby Clinic, and two years later the first milk depots were opened in France and the United States with the object of encouraging breast-feeding and giving advice to mothers about complementary and artificial feeding. The practice soon spread to other countries and was introduced into England in 1899. In this country close coöperation soon developed between the milk depots and health visitors, and the milk depots became rudimentary child-welfare clinics early in the present century. The enlightened policy of the Morel de Villiers family in France attracted the attention of Benjamin Broadbent, mayor of Huddersfield, in 1903, and reforms based on the de Villiers code were instituted in Huddersfield in the following years under the direction of S. G. Moore the medical officer of health. In 1907 the infant-welfare movement came into full operation in Huddersfield, and infant mortality fell from 134 per 1000 live births in 1906 to 97 in 1907. The influence on the infant-mortality rate of the social policy and hygienic measures introduced into the small town of Villiers-le-Duc in the Côte d'Or by the two mayors of the Morel de Villiers family is shown in fig. 4. The chief provisions of the de Villiers code which became obligatory by an order of the municipal council in 1903, were:

Every pregnant woman, married or single, who had not sufficient means to provide for her confinement was declared to have the right to require assistance from the commune, if she notified her condition to the Mayor before the seventh month, and stated by which midwife she wished to be attended.

The midwife was then asked to make an antenatal examination, for which she received a fee of five francs from a voluntary fund raised to provide free medical aid. The midwife had to report to the municipal authority all cases in which medical care was necessary, and the authority requested a doctor, chosen by the patient, to attend the case, his fee being paid from the medical aid fund.

The woman received from the medical aid fund a sum of six francs if she remained in bed for at least six days after confinement.

Every woman taking in a child to nurse was required, if the child was wholly or partly hand-fed, to obtain a milk-sterilising apparatus and feed the child in accordance with the written instructions supplied to her by the municipality. She had also to produce the apparatus, feeding bottle, and other accessories for inspection when required, and to notify all cases of illness within twenty-four hours of the appearance of the first symptoms.

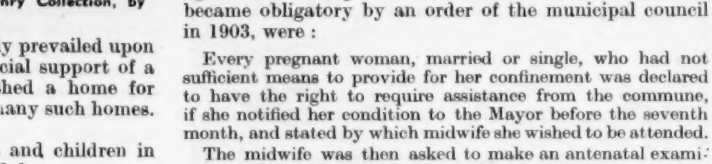

Fig. 3—Boys and girls employed underground in coal-mines were yoked to wagons which they had to drag along narrow low galleries. An illustration from the Report of the Royal Commission on Mines 1842.

All infants placed out to nurse were required to be weighed fortnightly on the communal weighing machine, either at the office of the commune or in the child's home.

Milk-sterilising apparatus and spare parts were supplied by the authority to nurses at reduced prices.

Every nurse who brought her own child, or a child entrusted to her, to the authority in good health at the end of the first year received a grant of two francs for each month during which the child had been under her care.

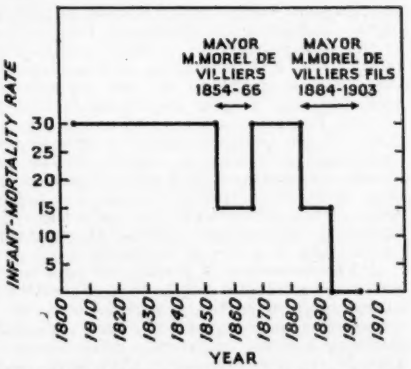

Fig. 4—The influence on infant mortality in the French village of Villiers-le-Duc in the 19th century of the enlightened social and hygienic policy of the mayors of the Morel de Villiers family.

This policy originally formulated one hundred years ago by a remarkable Frenchman foreshadowed the main provisions of the modern child-welfare system.

In the year 1914 preventive as distinct from palliative infant-welfare schemes were organised in both France and England. Provision was made for antenatal, natal, and postnatal care, including systematic maternal and child-welfare activities. By 1918 there were in this country 700 centres for maternity and infant welfare, and in that year the scope of the maternity and child-welfare service was extended by providing for food for expectant and nursing mothers and children under five years of age; crèches; day-nurseries; and homes for deserted and illegitimate children.

In the United States the infant-welfare movement is of more recent growth.

Deprived Children

The present century has seen the development of a much more enlightened attitude towards deprived and delinquent children. Unfortunate children deprived of normal family life, such as orphans and illegitimate and neglected children, a group from which a considerable proportion of juvenile delinquents come, have become progressively well cared for by a series of enactments culminating in the Children's Act of 1948. We in this country are very proud of the provisions of this most enlightened measure, which is based largely on the report of the Curtis Committee. The Act is designed "to ensure that all children in the care of local authorities or voluntary organisations, are brought up under good conditions, in an atmosphere of affection and security, comparable with that enjoyed by a child living in his own home with good parents." Thus the cornerstone of the Act is to achieve a great extension of the system of placing deprived children with carefully selected foster-parents, and to avoid the abnormal conditions of institutional life. The undoubted success of this new policy is largely due to the fine work of the children's officers.

Psychological Disorders

A more enlightened approach to the youthful delinquent became evident in 1907 when the Probation of Offenders Act established the principle of maintained supervision, and aimed at replacing punishment by encouragement and education. Various extensions of this policy have since been introduced and the proportion of youthful offenders who relapse into crime has diminished, provided that appropriate care is instituted at an early stage.

The child-guidance movement for the study of the motivation of behaviour in childhood, and the treatment of children with psychological disorders, began with the establishment of the Judge Baker Child Guidance Clinic in Boston, by Healey and Bronner, in the early part of this century. It was introduced into this country by the Commonwealth Fund of America in 1929 when the London Child Guidance Clinic was opened.

The Harvest

The manifold improvements in child care in the latter part of the 19th century, and in the present century, have inevitably produced an increasingly favourable influence on child health, which has been powerfully reinforced in the last two decades by unprecedentedly rapid advances in medical science. The revolution in therapeutics wrought by the discovery of the sulphonamide drugs and the antibiotic agents has immeasurably improved the prognosis in the common lethal infections of childhood. Though it has been riven by dreadful wars, the 20th century will surely become immortalised as the golden era of social and medical science, the period when the infant-mortality rate, the most sensitive index of the state of social conditions, fell dramatically in all progressive countries. In England and Wales it fell from 156 per 1000 live births in 1900 to 29 in 1951 (fig. 5). The following infant-mortality rates for the year 1949 give a general indication of the stage of social evolution reached by the countries mentioned:

Portugal	115 per 1000 live births
Italy	74 " " " "
Scotland	41 " " " "
England and Wales	32 " " " "
United States	31 " " " "
Holland	27 " " " "
New Zealand	24 " " " "
Sweden	20 " " " "

The Teaching of Pædiatrics

Clinical instruction in pædiatrics was first given by Rosenstein in Sweden in 1761, and was being given a few years later by Wilson in Armstrong's Dispensary in London. The first chair of pædiatrics was established at the Karolin Institute in Stockholm in 1845. In the second half of the 19th century there were several famous lecturers in the subject in Paris, Berlin, and Vienna, and Charles West, who founded the Hospital for Sick Children in Great Ormond Street, London, had a great reputation. In the United States Jacobi introduced bedside teaching in 1862. In this country, as elsewhere, academic instruction in diseases of children was long undertaken by professors of obstetrics; but, as interest in children's diseases grew, the tendency developed for physicians to provide extramural courses of instruction. In the second half of the 19th century the medical schools began to realise the importance of pædiatrics, and a lectureship was established in Birmingham in 1857 and another in Manchester in 1881. Most of the other schools soon followed, but the first chair was not established until

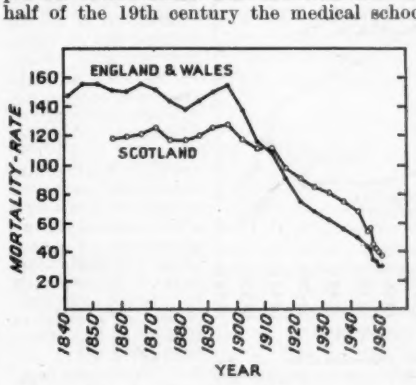

Fig. 5—Graphic representation of the remarkable steady fall in infant mortality in Britain during the present century.

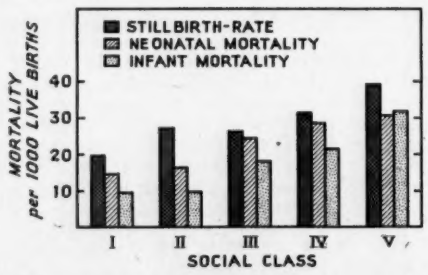

Fig. 6—The correlation between social circumstances and the loss of fœtal and infant life.

1906 when Sir Frederic Still was appointed professor of diseases of children at King's College, London. The other medical schools were slow to follow this example. Edinburgh was the first to emphasise health rather than disease and established a chair of child life and health in 1930. Since then almost all the remaining medical schools have established chairs of child health, most of them since the second world war.

Prospect

It is unlikely that further improvements in the standards of child care in the second half of this century will be as great as those which have been achieved in the first half; but this belief is no cause for complacency, for there are still many aspects of child care which call for improvement. It is an important function of a university department of child health to demonstrate how national and domestic improvements in the physical and psychological health of children can be achieved, and thus to fashion and lead new trends of care. So many of the improvements in child care which can be envisaged are unfortunately conditioned by ruthless economic laws, and it is against this background that much of the envisaged future progress must be considered.

I would draw your attention to several unsatisfactory aspects, mainly social, of child care at the present time—problems the solution of which would raise still further the standard which has already been achieved.

1. The effect of *inferior social conditions*, particularly bad housing, in the lower social grades is clearly shown by the stillbirth and infant-mortality rates in each of the Registrar-General's five social grades (fig. 6). The great efforts now being made to provide more and better houses will ultimately raise the standard of child health in its broadest sense.

2. The *continuing high loss of infant life* at the time of birth is a socio-medical problem on which increasing attention is being focused (fig. 7). Since the majority of infants lost at this time are premature, and the incidence of prematurity varies directly with the standard of social conditions, improved social standards and a universally high standard of ante-natal and obstetrical care can be expected to reduce substantially this wastage of infants on the threshold of life.

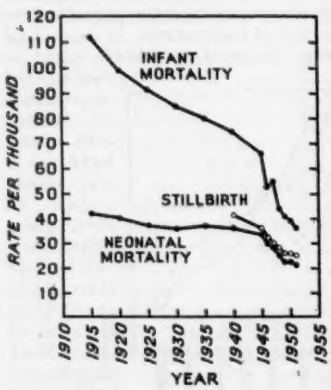

Fig. 7—Graphic representation of the slower decline in the stillbirth and neonatal (0-1 month) mortality rates than in the infant (0-12 months) mortality rate.

3. The *employment of mothers* of a young family in industry is one of our greatest social evils, a relic of the bad old days of the Industrial Revolution. I have been distressed to find this practice so prevalent in Dundee. It disrupts family life and precludes a high standard of child care, and is a feature of our national life which, it seems to me, is quite incompatible with the principles of the Welfare State. Unfortunately, the economic state of the nation and the necessity of increasing production is tending to accentuate the evil; but why should our mothers, to whom the nation owes so much, bear more than their share of the national burden? None of the services of local authorities to fill the gap caused by the mother's absence at work can compensate for the lack of a normal home life.

4. The *loosening of family ties* and increasing moral laxity are products of the mode of modern life. Diminishing parental guidance is believed to be the principal cause of the lowering of moral standards and the alarming increase of juvenile delinquency. It is always difficult to raise standards that have been allowed to drift, but the effort must be made.

These are a few of the ways by which we can ensure that the children of future generations may enjoy even healthier, happier lives than those of our own day.

ASSESSMENT AND PROGNOSIS IN HEMIPLEGIA *

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HEMIPLEGIA following a cerebral vascular accident is a common cause of disability in old age, and the incidence is likely to rise in our ageing population. These patients should be given every chance to regain as much activity and independence as their physical and mental capacities will allow—both in their own interests, and to reduce to a minimum domestic and nursing care needed. In the past, many hemiplegics have not been given the encouragement and lengthy re-education they required, and have left hospital to recover as best they could at home, or to lose initiative and retire to bed for life. Some have been transferred prematurely to chronic wards and have survived for years as bedfast invalids; others have reached hospital too late to benefit by treatment.

Lack of interest in the prognosis for paralysis in the hemiplegic patient may arise from statements such as these from three standard medical books:

> "The leg is always spastic in extension and does not go into flexion contracture as may happen in spastic paraplegia from spinal cord lesions."
>
> "Unless improvement commences in two or three weeks recovery is exceptional."
>
> "The amount which can be done for the hemiplegic depends more on his residual intelligence than on the efforts of his doctor."

The hemiplegic who survives the initial shock of a stroke deserves a more hopeful attitude towards his powers of recovery.

Almost seventy years ago Gowers (1888) described a régime of treatment for these patients which can hardly be bettered today. Discussing prognosis in cerebral hæmorrhage he said: "It is usually necessary to wait for a diminution in the palsy before an opinion can be formed. The parts in which there is some return of movement before the end of a month will probably recover useful power. Paralysis that is complete at the end of three months will probably remain considerable in degree for the rest of life." He added that "the tendency to improvement, by cerebral compensation and by spontaneous disappearance of indirect symptoms is very marked."

Cecil and Loeb (1947) emphasise that treatment of the hemiplegic patient should not be given up as hopeless until

* From a paper read to the Medical Society for the Care of the Elderly, May 8, 1952.

at least six months have elapsed, because "in an occasional case there will be no improvement for a few weeks after the onset of symptoms, but a gradual and appreciable improvement in the following months."

Brain (1951) writes: "the neural shock and œdema of surrounding areas of brain usually cause a more severe depression of function than is actually due to the destructive effect of the lesion. Some improvement may, therefore, be expected in most cases." He says that "if the upper limb exhibits returning power at the end of a month after onset a considerable degree of recovery of movement at the larger joints will probably occur in it. If however there is no improvement at the end of three months the paralysis is likely to be permanent."

Thus when the hemiplegic patient recovers from the initial shock he should begin a graduated régime of treatment (Warren 1948), continued if necessary in the outpatient department, until as much independence as possible is restored and no further improvement can be expected. The patient and the relatives should be assured of "the slow improvement that time will bring" (Gowers). If such treatment and encouragement are not given in the early months the chances of permanent incapacity and complete loss of independence are greatly increased.

Material

This paper is a review of 174 hemiplegics of vascular origin (83 men and 91 women) admitted to the geriatric wards of the Belfast City Hospital during the years 1949–50. Most of these patients were admitted at the end of the first or during the second week, when the family doctor or physician in a general hospital ward was satisfied that the patient would survive and need long-term nursing care. The nature of the underlying lesion (whether hæmorrhage or thrombosis) has been disregarded because of inadequate data for differential diagnosis in many cases. Criteria for differential diagnosis (Aring and Merritt 1935) are not readily applied to patients who have not been under supervision from the onset of the stroke, and are not infallible even then. The essential point in this inquiry was whether the patient survived the initial critical days or not. The "critical" period is the first fortnight—the period in which the maximum number of deaths directly due to hæmorrhage, thrombosis, or embolism seems to occur. The significant factors relating to prognosis in this period are well known—the nature of the underlying lesion and state of the vessels, and the duration rather than depth of coma, are important; and altered respiration, convulsions, hyperpyrexia, or rapid spontaneous sloughing with the development of bedsores, are of serious significance. We were interested, however, in the prognosis of residual paralysis in hemiplegia, and the patients were classified according to the following arbitrary groups:

A. "Recovered": those who responded to treatment and regained at least some degree of independence.

B. "Long-stay": those who failed to show appreciable improvement after three months of intensive treatment.

C. "Died": those who died before we were certain whether long-term rehabilitation would help them or not—i.e., in less than two months.

TABLE I—SURVIVAL AND RECOVERY OF 174 HEMIPLEGIC PATIENTS, REVIEWED AFTER 2 YEARS

Group	Males			Females			Both sexes		
	Average age (years)	No.	%	Average age (years)	No.	%	Average age (years)	No.	%
A. Recovered	68·2	42	50·6	64·2	32	35·2	65·9	74	42·5
B. Long-stay	72·5	25	30·1	70·9	30	32·9	71·6	55	31·6
C. Died (within 2 months)	74·7	16	19·3	71·8	29	31·9	72·8	45	25·9
Total	70·7	83	100	68·8	91	100	69·7	174	100

TABLE II—GRADING OF EXTENT OF RECOVERY OF 74 "RECOVERED" (GROUP-A) PATIENTS

Grade	Males		Females		Both sexes	
	No.	%	No.	%	No.	%
Grade I (Fully independent)	11	26·2	11	34·4	22	29·7
Grade II (Handicapped)	28	66·6	18	56·2	46	62·2
Grade III (Disabled)	3	7·2	3	9·4	6	8·1
Total	42	100	32	100	74	100

The degree of recovery achieved by individual patients was assessed by the following system of grading, which at least has the merit of simplicity:

Grade I.—Fully independent: intellect clear, full use of hand, walking.

Grade II.—Handicapped: requires help with dressing, &c., but walks unaided.

Grade III.—Disabled: arm and leg so affected as to require help in walking, or mind impaired to a moderate degree; but patient able to at least sit up for the greater part of each day.

Grade IV.—Bedfast: inactive, with or without incontinence, contractures, or gross mental deterioration, though possibly able to sit out of bed for a part of each day.

As would be expected grades I and II applied mainly to patients in group A, and grades III and IV to those in group B who were "frail ambulant" or bedfast long-stay patients.

Results

Table I shows the average ages of the 174 hemiplegic patients, and the sexes, shown separately and combined, are classified into groups A, B, and C.

Group A.—74 patients (42·5% of the total) responded to treatment. Of these, 42 were men and 32 women (50·6% of all the males as compared with 35·2% of all the females). However, table II shows that a slightly higher proportion of women (34·4%) attained grade-I recoveries than of men (26·2%), and the reverse was true of grade II, which contains the majority of both sexes (66·6% of the men and 56·2% of the women in group A). Owing to the small numbers of patients in this series, these figures must be accepted with considerable reserve; but they suggest that though more men than women tend to respond to treatment after a hemiplegia from a cerebral vascular lesion, the women who respond tend on the whole to make a better recovery.

The majority of all group-A patients could walk unaided, but fewer than 1 in 10 regained full use of the affected hand. The average age of the male patients in this group was 68·2 years and of the females 64·2 (table I). In 51% of the patients the left side of the brain was affected and in 45% the right; 4% of the patients had bilateral involvement owing to a previous lesion. The average time in hospital of the patients of both sexes in this group was 72 days, varying from 8 days up to 192 days.

Group B.—25 men (30·1%) and 30 women (32·9%) became bedfast long-stay cases (table I) and none of these patients recovered beyond grade III. Their predominant handicap was intellectual impairment or mental deterioration resulting in lack of initiative, and inability to coöperate in exercises. Complications were common in this group especially heart-disease (arrhythmias, heart-block, or hypertensive heart-failure). In many of them persistent incontinence could not be overcome.

The average ages of these patients in either sex was higher than that of the group-A patients (males 72·5 years, females 70·9 years) and a high proportion of them remained in long-stay beds in the unit, a few becoming mental-hospital cases. The right cerebral hemisphere was involved in 33% of the patients, the left in 62%, and both hemispheres in 5%.

Group C.—Of the men 16 (19·3%), and of the women 29 (31·9%), failed to respond to treatment and died during the first two months. Men appear to give up the unequal struggle earlier (average 25 days) than women (53 days). None of these patients showed sufficient mental or physical improvement to be graded. The average ages for males and for females were slightly higher than those of the long-stay group (74·7 years in males, 71·8 years in females). The right cerebral hemisphere was affected in 40%, the left in 58%, and both sides in 2%.

SURVIVALS IN "RECOVERED" AND "LONG-STAY" CASES

Group A.—Questionnaires were sent to the family doctors (asking which of the grades detailed above would apply to the patient, or, if the patient had died, the date of death), or else a personal visit was made. The condition of all 74 patients, after discharge from hospital was thus reviewed. The longest period elapsing since discharge was two and a half years, and the shortest nine months.

Of the 42 men 18 (42·9%), and of the 32 women 10 (31·2%), had died since discharge. The average time of survival of the men who had died was two years, and of the women one year, though the average age of the men in this group as a whole tended to be greater than that of the women (table I). In most of the survivors, the grading had not altered since discharge; any change had usually been towards improvement.

Thus a man, aged 60, who had a left cerebral hæmorrhage with a very severe flaccid residual paralysis and aphasia, remained dull, unresponsive, incontinent, and unable to use either the arm or leg until the fifth month, when he began to brighten up and regain some function in the affected leg. He improved slowly but steadily thereafter until he was discharged ten weeks later, able to walk with the help of a calliper and toe-spring. The hand was still useless, but he was sufficiently coöperative by then to exercise it himself with his good hand. We regarded him as a "shaky grade II" and did not expect much of him, hoping only that he would not lapse into bedfast invalidism. When visited two years later he was down in the "local," playing darts.

Similarly an elderly lady left the unit contrary to advice in the second week after her stroke and returned home by ambulance still unfit to sit out of bed. She was not expected to survive, but when the home was visited two years later and the lady who opened the door was asked about the fate of the patient, she was very indignant at not being recognised.

The first of these patients is an example of the value of persistence with passive exercise and encouragement in the early months, because compensation after severe brain damage may be long delayed, and contractures may develop rapidly during this period. The second patient shows how recovery is dependent to a great extent on the patient's own efforts and emphasises the difficulty of an accurate assessment of the future capabilities of these patients in the early stages.

Group B.—Of the 25 long-stay male patients 14 (56%), and of the 30 female patients 13 (43·3%), had died when the inquiry was made. They survived, on an average, between two and three years, but some were admitted for an attempt at rehabilitation a year or more after the original cerebral thrombosis, with little hope of effective response to treatment.

Prognosis

In this series the average ages of the men and women who died in the early weeks were higher than the average ages of those who remained as long-stay cases, and these in turn were on average older than those who recovered (table I). Great age, however, is not in itself a deterrent to a very good recovery from a hemiplegia. The mental and physical capacity of the patient before the stroke is of much greater importance, since the hemiplegic cannot be expected to recover faculties which were lacking before he was struck down. It is necessary therefore to have details of the previous history, and especially of previous strokes leading to mental deterioriation, or incontinence. The site and the severity of the vascular lesion give little indication of the future capacity of the patient to regain function. Severe sensory impairment and hemianopia indicate an extensive lesion, and the sensory ataxia which ehsues may prejudice the long-term recovery by impairing the patient's efforts to make the best use of returning voluntary power. Neurovascular disturbance with œdema of the affected hand (and often of the leg) is commonly associated with painful shoulder and elbow joints, and intense spasm of the long flexors with contracture of the fingers. Prolonged physiotherapy even for two years seems to do little for these hands beyond preventing very gross contractures. (We have seen a patient aged 46 with mitral stenosis and a cerebral embolism who recovered good use of the affected hand between eighteen months and two years after onset.) If finger movements appear in the early weeks, full recovery, apart from some incoördination, may be expected when spasticity in the hand is controlled by physiotherapy.

The prognosis is poor if recovery of movement is long delayed, or if flaccid paralysis persists beyond the early weeks. The so-called late rigidity, due to active muscle contraction, usually appears in the first month or six weeks. Some patients with flaccid paralysis continuing beyond this time may recover the ability to walk in a year or more, and it is worth while persisting with exercises and physiotherapy for at least six months. The most encouraging sign is early return of dorsiflexion in the foot, but the outlook is poor if, despite physiotherapy, spasticity, equinovarus deformity and external rotation develop rapidly in the leg. These patients usually seem to have considerable mental impairment as well.

The mental state of the patient is most important, and it is not possible in the early stages to predict either the degree of intellectual capacity which a confused hemiplegic patient may regain, or the time which such a patient may need for his maximum recovery. Mental confusion may be aggravated in the early stages by dehydration or by excessive sedation, and (like incontinence) often improves rapidly when the patient begins to sit up out of bed.

Patients who remain dull and apathetic with much retardation of thought, and inability to understand or coöperate in rehabilitation readily become long-stay cases. There are patients like this who have relatively little impairment of physical function, and who were previously alert and active persons, and yet remain as helpless uninterested vegetables, usually incontinent. Most of them die within two years, but a few, after six months to a year, make an unexpected recovery and can return to a normal life, provided that they have not been permitted to develop severe contractures.

A woman, aged 76, following a cerebral thrombosis had been lying in a cot in the chronic ward of a hospital for fifteen months, disorientated, emotionally labile, doubly incontinent, and with a partial contracture of the hemiplegic leg. The mental improvement when she began to sit out of bed encouraged further attempts at rehabilitation, and eight months later she left hospital, fully independent, alert, rational, and free from incontinence. She is now in her 80th year, still able to run her own home and do her own shopping.

Physiotherapy and periodic review are therefore necessary for at least six months in doubtful cases, especially those with aphasia. Failure to overcome persistent incontinence is a discouraging sign.

A curious personality change sometimes follows an apparently trivial cerebral vascular lesion. Patients, previously with a wide range of interests, are reduced to a restless, fretful, and emotionally unstable state, unable to settle down to any of their old activities.

Only the barest clinical evidence of the cerebral thrombosis remains; speech, memory, and intellect are apparently unimpaired; but they cannot concentrate even on small household duties, reading, or hobbies, and they tire quickly. Their tolerance for alcohol is very low and even one glass of sherry may deprive them of all emotional control. The condition may persist for years, and is accompanied by great distress and frustration caused by unimpaired insight into their condition.

The time which elapses before rehabilitation is started seems to be related to the prognosis for long-term recovery of a hemiplegic patient, and many of those in this series who became irremediable long-stay patients were admitted six months or more after the onset of a stroke. The earlier the patient can start sitting up after the initial shock has passed off (usually at the end of the second week), and the earlier voluntary coöperation in exercises can be obtained, the better the prospects for recovery—or at least for walking.

No study of the relation of blood-pressure to the prognosis in hemiplegia was possible in this series, for in many cases only one recording was made. The average systolic pressure, for males and females, was about 180 mm. Hg, and the diastolic 105 mm. Hg, with little variation in the subgroups. It is surprising how some patients with very high pressures make excellent recoveries and carry on for years. We tend to ignore the blood-pressure, provided the patient is otherwise fit to coöperate in rehabilitation, and feel that it is questionable whether there is much to be gained by antipressor drugs or ganglion-blocking agents, since neither can affect the underlying atherosclerosis.

RESPONSE TO TREATMENT

The assessment of a hemiplegic patient, therefore, depends more on the response over many weeks, or months, to a graduated régime of treatment than on the site or severity of a specific cerebral vascular lesion. In the critical first two weeks survival is all-important. Thereafter the chief interest is the prognosis for recovery of function, and this cannot be defined wholly in terms of a neuro-anatomical lesion. A variable degree of function returns, and clouding of consciousness disappears, as œdema around the cerebral lesion subsides; but functions subserved by areas of brain tissue which have been destroyed can only be restored by re-education of alternative pathways, or by compensation from the opposite cerebral hemisphere. The destructive lesion directly causes negative symptoms (loss of function) only; but indirectly it can influence the opposite hemisphere, producing undesirable side-effects which are caused by the brain's attempt to adapt itself to the damage. Thus delusions and irritability are compensating phenomena in senile psychoses. Krynau (1950) has recorded considerable mental improvement, and the disappearance of epileptic manifestations, in patients with infantile hemiplegia, who have undergone hemispherectomy, presumably because the unaffected hemisphere is thus released from the abnormal influences of the pathological side. Hemispherectomy in his patients had no adverse effect on the hemiplegic limbs which rapidly regained their preoperative state but with lessened spasticity and clumsiness.

Hemispherectomy is impracticable in elderly hemiplegics because of their age and the irreversible degenerative vascular changes; and for the same reason re-education and compensation of function after a stroke are compromised. But in treatment it is important to recognise the need for time to allow the patient to make the most of the mental and physical capacity remaining, and to become adjusted to his disability.

There is no doubt in our minds that the prognosis for the hemiplegic patient is better under what has been described as the "prolonged supervised convalescence" of a geriatric unit than in the average general medical ward. A ward routine geared down to the capacity of the patient; the encouragement and competitive stimulus of group treatment in the company of similarly afflicted patients; assurance of the slow improvement to be expected in time; emphasis on prevention rather than cure of contractures; and a systematic routine of re-education—all these reduce the incidence of bedfast invalidism among them. Until such time as an answer is found to degenerative vascular disease, the best hopes lie in this kind of management.

Summary

A series of 174 patients admitted to hospital with hemiplegia of vascular origin have been reviewed; the prognosis for recovery from residual paralysis is discussed. The series is small and the conclusions must be accepted with reserve.

Of the 174 patients, 74 recovered and were discharged home, 55 remained in hospital as long-stay cases, and 45 died within two months of the stroke.

The hemiplegic patient requires time and prolonged supervised convalescence after the stroke, if he is to regain the maximum physical and mental function possible to him. Such management of cases may be expected to reduce to a minimum the number of elderly bedfast invalids created by this disability.

Our thanks are due to Miss E. M. Sargaison, almoner to the geriatric department, Belfast City Hospital, for her assistance in reviewing many of these patients; to the doctors who replied to the questionnaires; to Dr. R. S. Allison and Dr. J. H. D. Miller for their helpful comments and criticism; and to Miss M. White for secretarial work.

REFERENCES

Aring, C. D., Merritt, H. H. (1935) *Arch. intern. Med.* **56**, 435.
Brain, W. R. (1951) Diseases of the Nervous System. London.
Cecil, R. L., Loeb, R. F. (1947) *In* Textbook of Medicine. Philadelphia and London.
Gowers, W. R. (1888) *In* A Manual of Diseases of the Nervous System. London.
Krynau R. A. (1950) *J. Neurol. Psychiat.* **13**, 243.
Warren, M. W. (1948) *Med. Pr.* **219**, 396.

APNŒA FOR BRONCHOGRAPHY IN CHILDREN

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THE technique of general anæsthesia for bronchography, using sodium thiopentone and a relaxant to produce apnœa, has been used at this hospital in over 200 cases. It has proved more satisfactory than other methods, and there have been no deaths or complications attributable to the anæsthetic.

Other techniques in common use have certain disadvantages:

(1) *Local Analgesia.*—Bronchography in the conscious child, however skilfully done, is an ordeal. Many children have repeated bronchograms to assess progress, and it is

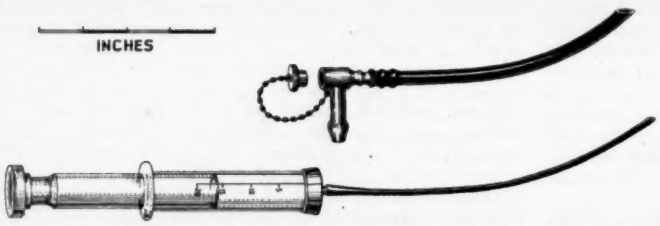

Fig. 1—Uncuffed Magill endotracheal tube (mounted on Cobb suction connection), syringe, and catheter for bronchography.

desirable that they should not remember the procedure as unpleasant.

(2) *Inhalation Anæsthesia.*—Trichlorethylene and chloroform, although non-explosive, were abandoned, the former because it is inadequate for safe intubation, and the latter because of its undesirable side-effects. Cyclopropane and diethyl ether involve the risk of explosion in conjunction with X-ray apparatus. Ether, moreover, dilates the bronchi to such an extent that bronchiectasis may be mistakenly diagnosed, subsequent bronchography by another technique demonstrating a " cure " (Lucas 1952).

Technique

Preliminary physiotherapy is essential to clear the bronchial tree. In addition, a short course of a sulphonamide or an antibiotic may be given if there is much sputum.

Premedication.—Ephedrine hydrochloride is given, $1^1/_4$ hours before the operation, according to the following dosage :

Body-weight	*Dose*
20–30 lb.	gr. $^1/_2$
30–40 lb.	gr. $^3/_4$
40–50 lb.	gr. 1
More than 50 lb.	gr. $1^1/_4$

This is to counteract the constrictive effect of sodium thiopentone on the bronchi; without it, filling of the bronchi may not extend far enough to the periphery. Atropine sulphate gr. $^1/_{100}$ is given subcutaneously half an hour before the operation.

Equipment.—(1) An uncuffed Magill endotracheal tube mounted on a Cobb suction connection. The tube selected should be the largest that the larynx will accommodate (fig. 1).

(2) A gum-elastic catheter of adequate bore, and a suction apparatus.

(3) A 20-ml. syringe containing the contrast medium, connected to the largest soft-rubber catheter that can be threaded through the endotracheal tube. The length of the catheter is such that its tip projects very slightly beyond the end of the tube (fig. 1). The amount of contrast medium (we have used ' Lipiodol,' ' Neohydriol,' ' Dionosil,' and ' Ioduron B ') is 1 ml. per 10 lb. body-weight, for each side, plus an extra 1 ml. for the first side, because about that amount remains in the trachea. Children already known to have bronchiectasis may require more than this amount to show up the dilated bronchi or cysts.

Fig. 2—Posture of child (sitting, with trunk inclined 45° to right) at start of filling of right bronchial tree with radio-opaque medium for bronchography.

Procedure

Anæsthesia is induced on the X-ray table with sodium thiopentone 0·1 g. per 14 lb. body-weight, followed by gallamine triethiodide (' Flaxedil ') 1 mg. per lb. body-weight plus 5 mg. The lungs are inflated with oxygen until relaxation is complete. Intubation is done through the mouth, any secretion is aspirated, and the lungs are well aerated with oxygen immediately before the contrast medium is injected.

To outline the right bronchial tree (which it is usually best to do first if both sides are to be examined) the child is held in a sitting position with the trunk inclined 45° to the right (fig. 2). Throughout the procedure the head is controlled by the anæsthetist, and the hips and legs fixed by an assistant. The whole of the contrast medium

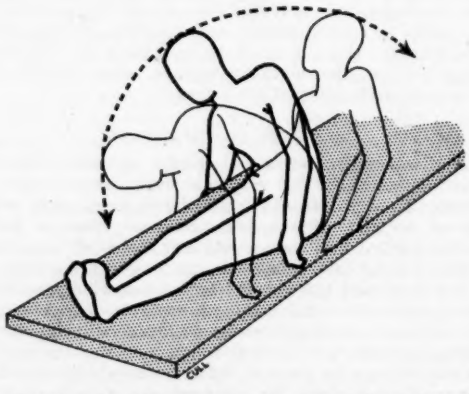

Fig. 3—Distribution of radio-opaque medium throughout right middle and lower lobes by swinging trunk of child gently backwards and forwards while inclination of 45° to right is maintained.

for that side is now rapidly injected through the suction connection, and the catheter is immediately withdrawn. The lateral angle of the body is maintained, and the trunk swung gently backwards and forwards to distribute the medium in the middle and lower lobes (fig. 3). To direct some into the upper-lobe bronchus, the child is now laid on its right side, and the branches of the upper-lobe bronchus are filled by tilting the table (fig. 4) and rotating the shoulders, or by holding the child over the edge of the table as described by Field (1942). Each position is maintained for only a few seconds, the patient is returned to the horizontal, and right lateral and anteroposterior films are rapidly taken, followed by a right posterior oblique if desired.

Throughout the procedure the child is apnœic; but, provided that the time taken to inject the medium, to posture, and to expose the films does not exceed a minute, there will be no cyanosis and no alveolar filling. As soon as the last film has been taken, the lungs are inflated with oxygen and any excess medium is aspirated. The same procedure is repeated for the left side, and left posterior oblique and anteroposterior films are taken. Aspiration and inflation are again done; and,

while the films are being developed, fluoroscopy may be carried out. By this time spontaneous respiration will have begun, and within 20–30 minutes from the induction of anæsthesia full reflex activity is present. To facilitate clearing of the bronchial tree the child is left in the Trendelenburg position and, while the endotracheal tube is still in situ, frequent aspiration is done. When consciousness is regained, the tube is removed and the patient returned to the ward, where the foot of the bed is raised and coughing encouraged. No preoperative sedative is given; hence the child is less drowsy and more coöperative at this stage.

Discussion

With this technique we have obtained better bronchograms than with other methods of general anæsthesia. There is no risk of explosion, and the apnœa produces a completely quiescent bronchial tree, the filling of which depends only on the posture of the patient and on the amount and physical properties of the radio-opaque material. Oxygen can be given at any time with an assured airway, and aspiration of secretions and contrast medium is possible. The method appears to be safe, and both sides of the bronchial tree can be examined at the same session. It may not be possible to use this technique in young fat children because of difficulty in finding a suitable vein for the injection, and children known to be asthmatic should be treated with particular caution.

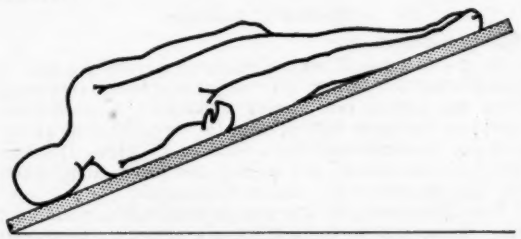

Fig. 4—To fill upper-lobe bronchus with radio-opaque medium child is laid on right side in Trendelenburg position and shoulders are rotated.

Summary

A technique of bronchography under general anæsthesia, using thiopentone and gallamine triethiodide to produce apnœa, is described.

The method has been used in over 200 cases, with no deaths or serious complications.

There is no risk of explosion, and good bronchograms are regularly obtained, there being no tendency to alveolar filling.

Both sides of the bronchial tree may be bronchographed at the same session.

Our thanks are due to Dr. Margaret Bridges for introducing to us this technique, which was devised by Dr. B. A. Sellick. We wish to thank also the physicians and surgeons to the Hospital for Sick Children; Dr. L. G. Blair, director of the X-ray department; and all the radiologists, radiographers, nurses, and house-physicians who have coöperated in the operations. We are very grateful to Dr. R. W. Cope and Dr. B. G. B. Lucas for help in the preparation of this account, and to Mr. P. G. Cull for the illustrations.

REFERENCES

Field, C. E. (1942) *Lancet*, ii, 357.
Lucas, B. G. B. (1952) *Anæsthesia*, **7**, 88.

"... This co-existence of habits prompting respectively the increase and the control of populations is what the social anthropologist, familiar with how novel forms of behaviour graft themselves on to archaic, would expect. . . . Society's attitude to demographic problems is essentially Janus-faced; it faces in two directions—forwards and backwards at the same time."—Dr. C. P. BLACKER: *Report of Third International Conference for Planned Parenthood.*

DISSEMINATED SCLEROSIS

ASSESSMENT OF THE EFFECT OF TREATMENT ON THE COURSE OF THE DISEASE

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THIS paper presents the results of treatment in two groups of patients with disseminated sclerosis. The study illustrates the difficulties that arise in assessing the effects of treatment in this disease. These are due largely to the occurrence of spontaneous remissions, which may last for twenty years or more, and to differences in the course of the illness in different patients.

The literature of the treatment of disseminated sclerosis has been extensively reviewed by Brickner (1936) and Schumacher (1950), and no review will be attempted here.

In general, treatment is designed to prevent, interrupt, or reverse a pathological process, or to mitigate the effects of established lesions. This report is not concerned with the limited benefits to be expected from measures to improve the general health, from physiotherapy, or from the use of drugs to relieve muscle spasm, pain, and bladder dysfunction, but rather with methods of assessing treatment designed to affect the basic pathological process.

There is no evidence that, either in man or in animals, a process of demyelination within the central nervous system is reversible. Function, however, depends upon the integrity of the axis cylinders, and it is characteristic of disseminated sclerosis that these are relatively spared in the early stages.

In a previous paper (McAlpine and Compston 1952) the outcome of 1582 episodes of disseminated sclerosis in 414 patients was analysed. Of this number, 1221 ended in a remission, leaving little or no increased disability. The end-results of individual episodes are, therefore, a poor criterion of effective treatment.

Most published accounts of the results of treatment have been based upon the degree of disability before and after treatment; but this method has certain drawbacks. Lesions at all stages of development contribute to disability; when acute they may produce severe but temporary loss of function, whereas the later gliotic patches will give rise to a disability that may persist between relapses. These chronic lesions tend to produce a loss of function which is progressive. Should a form of treatment become available which would shorten or prevent relapses in the early stage of the disease, it would be unlikely to influence established symptoms or prevent their progression.

The essential criterion of efficacy of any form of treatment must be its ability to prevent relapses. The absence of fresh symptoms, however, does not exclude the possibility that new plaques are appearing, particularly in the cerebrum, where post-mortem examination often reveals widespread lesions that cannot be correlated with the clinical course of the disease. It is common experience that a patient's relapse is often identical with a previous attack. Such a relapse may be due either to the appearance of a fresh plaque near the site of an old one, or to "reactivation" of a previous lesion. These two possibilities cannot be distinguished clinically and in judging the effect of therapy the relapse must be regarded as evidence of a new lesion.

Ideally the incidence of fresh episodes in a series of cases in which treatment was commenced immediately after the initial attack should be compared with the incidence in a similar control series. In practice, however,

only patients at varying stages of their illness are likely to be available. Groups of patients should be matched for such factors as age, sex, and duration and type of disease, but should otherwise be selected at random.

The conduct of such a therapeutic trial, relatively easy in a short illness, presents considerable practical problems in chronic disease, and particularly in chronic relapsing disease. It is difficult to persuade large groups of patients to undergo treatment over a long period, when some are symptom-free and others notice little improvement in their symptoms. Inevitably certain patients will default or seek advice elsewhere. It is essential that in any such study the control group be given an alternative form of treatment administered in the same way as that under examination, firstly because of its psychological effect, and secondly because without treatment patients will not attend for periodical review. In spite of these difficulties comparison of a treated group with a control group remains the ideal.

An alternative method, applicable to almost all material, is to compare the course of the disease before and after treatment. The advantage is that the "treatment years" are compared with the "pre-treatment years" in the same patients. Certain shortcomings in the method must, however, be recognised. In disseminated sclerosis the patient's memory is usually the only source of information about incidence of relapses during the pre-treatment years; and though the number of relapses overlooked will be negligible in cases with a recent onset, in others it may be significant. During the treatment years, while patients are under frequent review, almost all attacks are likely to be recorded. Moreover, treated patients form a selected group who have continued to attend; it is a matter for conjecture whether those who cease treatment are more likely to do so because of favourable or unfavourable progress. Again, the incidence of relapse has been shown to be higher in the early stages of the disease than in the later stages (Müller 1949, McAlpine and Compston 1952). The relapse-rate in treatment years must therefore be expected to be slightly less than that in pre-treatment years.

Material and Methods of Treatment

From September, 1947, to March, 1949, a group of patients attending the neurological department of the Middlesex Hospital for the first time with disseminated sclerosis were treated as recommended by Prof. P. C. Cloake in his Humphry Davy Rolleston lecture (1947) on the Treatment of Disseminated Sclerosis by Artificial Pyrexia and the Prolonged Administration of Arsenic. Professor Cloake recommended the use of intravenous T.A.B. vaccine, fever being induced four times with at least one day between bouts of pyrexia. This was to be followed within three to seven days by a course of intravenous arsenic in the form of neoarsphenamine, consisting of four injections at weekly intervals, the first dose being 0·3 g. and the remaining three doses 0·45 g. In the first three years four of these courses were to be given yearly; in the next two years, three-yearly; and in the next five years, two-yearly. Between the courses, liquor arsenicalis minims 4 t.d.s. for three weeks out of every four was to be administered.

As far as possible this routine has been carried out; but in certain cases the initial induction of fever was omitted (usually in patients treated in the outpatient department) and in others the course of fever was cut short because of severe reactions. Patients in an advanced stage of the disease did not receive this treatment. The majority of patients were treated at a special clinic at the hospital; but others, because of their personal preference or because of the distance of their homes from hospital, were treated by their private doctors. The cases attending the clinic were reviewed every three months and the others every six months.

This treatment was started in 117 cases. Certain patients failed to keep up attendance, and in other cases treatment was stopped by their private doctor; 28 discontinued arsenic for these reasons. In 5 cases treatment could not be continued because of toxic reactions. In 4 cases a follow-up visit was not made. 2 patients received other treatment in addition to their arsenic. There were 6 patients in whom the duration of the disease before the initiation of treatment was between one and two years, and whose progress could not be analysed by the method outlined below.

After March, 1949, a group of cases were treated solely with large doses of anti-histamine drugs, in view of the possibility that hypersensitivity was a factor in the genesis of disseminated sclerosis (McAlpine and Compston 1952). The drugs used were 'Antistin' (2-phenylbenzylaminomethyl imidazoline methane sulphonate, Ciba), 'Anthisan' (mepyramine maleate, May & Baker), and 'Phenergan' (promethazine hydrochloride, May & Baker). The dosage aimed at was from 500 to 1000 mg. per day of antistin or anthisan, and from 75 to 125 mg. per day of phenergan. Although 150 patients received this treatment initially, 82 failed to maintain an adequate dosage or took the drugs only intermittently. 9 were excluded from analysis by the duration of their disease before treatment began, 6 were not personally followed up, and 7 had received arsenic treatment before being put on anti-histamine drugs.

Method of Analysis

Effect on Relapse-rate

In the absence of control material for either group, it was decided to compare the relapse-rate before treatment with the relapse-rate during treatment in each case, calculate the mean difference in the rates for each group, and test its significance by "Student's" t test. Tables I (fever-arsenic group) and II (anti-histamine group) show the relapses before and during treatment.

For calculations of the relapse-rate before treatment only the second to the sixth years preceding treatment have been used. From both tables it may be seen that the incidence of relapse in the year immediately preceding treatment is much higher than in any other year. This is because patients tend to seek advice when their disease is following a particularly unfavourable course; accordingly the relapse-rate in this selected year has been omitted. The years before the sixth preceding treatment have been omitted because of the increasing unreliability of the past history.

As the method of analysis is designed to demonstrate changes in the relapse-rate, the initial episode of the disease has not been included in the calculations. It follows therefore that only patients who have had two clear years of exposure to relapse preceding the initiation of treatment can be analysed by this method. This criterion was fulfulled by 57 patients treated with arsenic and 33 treated with anti-histamine drugs. The relapse-rate of those patients who received treatment during the first year of their disease, of whom there were 15 in the arsenic-treated group and 13 in the anti-histamine-treated group, can be directly compared.

Effect on Degree of Disability

The difficulty of finding standards to estimate disability was discussed by McAlpine and Compston, who classified disability according to the following criteria:

1. *Unrestricted.*—Without restriction of activity for normal employment and domestic purposes, but not necessarily symptom-free.

2. *Restricted.*—Able to walk unaided for short distances (up to half a mile), and able to get on and off public transport.

3. *Markedly restricted.*—Capable of moving out of doors with difficulty for up to a quarter of a mile, usually with the aid of sticks; often unable to use public transport.

4. *Mobile at home.*—Able to move with difficulty about the house, with support from furniture; unable to mount stairs.

5. *Immobile at home.*—Confined to a chair or wheel-chair, and entirely dependent upon others for moving from room to room.

6. *Bedridden.*

The standard of disability in all patients in both treatment groups who had had treatment for one or more years, including those who began within a year of onset of their disease, has been calculated before and after treatment. In all cases the degree of disability has been assessed between relapses, for during relapse patients may be temporarily immobile or bedridden.

Results

The results in 57 patients receiving artificial pyrexia and arsenic are set out in table I. Statistical calculation shows that the difference in the relapse-rate of the pre-treatment and treatment years is insignificant. A separate analysis revealed no difference between those patients who received T.A.B. injections and those who were given only arsenic.

Results in 33 patients given anti-histamine drugs are analysed in a similar manner in table II. The relapse-rate in this group was slightly higher during the treatment years than in the pre-treatment years, but the difference was again insignificant.

15 patients received treatment with artificial pyrexia and arsenic within one year of the onset of their disease; 8 of these subsequently relapsed, the total relapse-rate being 11 in thirty-four treatment years—an annual rate of 0·32. Similarly of 13 patients receiving anti-histamine drugs within one year of the onset of their disease, 5 relapsed, and there was a total of 6 relapses in nineteen treatment years—an annual rate of 0·32. McAlpine and Compston found the annual relapse-rate in the early years of the disease in 414 patients to be of the same order as in these two groups.

Table III indicates the changes in the degree of disability that took place in each group while under treatment. The two groups are not comparable, in that those patients treated with neoarsphenamine were observed for a longer period than those receiving anti-histamine drugs. The percentage of cases showing increased disability in the arsenic-treated group would therefore be expected to exceed that in the anti-histamine-treated group. The figures for the two groups are, however, approximately equal.

TABLE I—57 PATIENTS RECEIVING ARTIFICIAL PYREXIA AND ARSENIC, OR ARSENIC ALONE. NUMBER OF RELAPSES IN EACH YEAR OF DISEASE

Case no.	Pre-treatment years																		Treatment years				Relapse-rate		Difference
	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	1	2	3	4	Pre-treatment years 2–6	Treatment years 1–4	
247																O	–	2	1	1	–	–	–	–	1·0	0	−1·0
50																		O	–	1	1	1	–		0	0·67	+0·67
210													O	–	–	–	–	–	–	1	–	–	–		0	0	..
244	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1	1	–			0·2	0·5	+0·3
340							O	–	1	–	–	–	–	–	–	–	–	–	–	1	–	–			0	0	..
200																	O	–	–	1	–	–	–		0	0	..
163														O	2	1	–	–	–	3					0·6	1·5	+0·9
17											O	1	1	1	1	1	2	–	1	1	–				1·0	0	−1·0
169																	O	–	2	1	–	–	–	–	1·0	0	−1·0
19														O	–	–	–	–	–	1	–	1	–		0	0·33	+0·33
315									O	–	–	–	–	–	–	1	1	–	1	2	–	–	–		0·6	0	−0·6
351																	O	–	–	1	–	–			0	0	..
44							O	–	–	–	–	–	–	–	–	–	–	–	1	2	–	–	–		0·2	0	−0·2
153																	O	–	–	2	–	1	1	1	0	0·75	+0·75
235																		O	–	–	1				0	1·0	+1·0
540																		O	1	1	–	–			1·0	0	−1·0
181		O	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	1	–	2	–	–	0	0·5	+0·5
217												O	–	–	1	–	–	–	–	–					0·2	0	−0·2
96															O	–	–	1	–	1	–				0·25	0	−0·25
4											O	–	–	–	–	1	–	1	1	1	1				0·6	1·0	+0·4
34															O	1	–	–	2	1	–				0·75	0	−0·75
25														O	–	–	–	–	–	1	–	–	–	–	0	0	..
45	O	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1	–	–	–		0·2	0	−0·2
213																		O	–	2	2	–	–		0	0·67	+0·67
95														O	–	–	1	1	–	1	1	1	1		0·4	1·0	+0·6
51														O	–	–	–	–	1	–	–				0·2	0	−0·2
78										O	–	–	–	–	1	–	–	2	1	1	–	–			0·8	0	−0·8
252						O	1	1	1	1	1	2	2	1	1	1	1	1	–	1	1				0·8	1·0	+0·2
245															O	3	1	–	1	1	1	–	1		1·25	0·67	−0·58
123								O	–	–	–	–	–	1	–	–	–	–	–	–	–	–			0	0	..
277	–	–	–	–	–	–	–	–	–	–	1	–	–	1	1	–	–	–	–	–	–	–	–	–	0·2	0	−0·2
177														O	–	–	–	–	–	1	–	–	–	–	0	0	..
3															O	–	–	–	–	–	1	–			0	0·5	+0·5
134																		O	2	2	–	–	1	–	2·0	0·25	−1·75
16	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1	–	–	–	–		0·4	0	−0·4
2							O	–	1	–	–	–	1	1	1	4	2	1	1	3	–	1			1·8	0·5	−1·3
5										O	–	–	–	–	–	–	–	–	1	1	1	–	–		0·2	0·25	+0·05
20													O	1	–	–	1	–	–	1	–	1	1	1	0·2	0·75	+0·55
256		O	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–		0·2	0	−0·2
23	–	–	1	–	–	–	–	–	1	–	–	1	1	–	1	–	–	–	–	1	–	2			0·2	1·0	+0·8
94										O	–	–	–	–	–	1	–	–	–	–	–	–	1		0·4	0·33	−0·07
539															O	–	–	–	–	1	1	1			0	1·0	+1·0
6																		O	2	1	1				2·0	1·0	−1·0
58												O	–	–	–	1	–	–	1	1	–				0·4	0	−0·4
180																		O	–	–	–	–	–		0	0	..
204																		O	2	1	–	–	–		2·0	0	−2·0
43										O	–	1	–	–	–	–	–	–	–	2	–	–	–		0	0	..
89																	O	–	–	1	–	–	–		0	0	..
137																O	1	–	1	1	–	1	–	–	0·67	0·25	−0·42
10														O	–	–	–	–	1	1	–	1	1		0·2	0·67	+0·47
24											O	–	–	–	–	–	–	–	–	2	1	1	2		0	1·33	+1·33
345																		O	–	1	–	–			0	0	..
39											O	1	–	1	–	–	–	–	–	1	–	–	1		0	0·33	+0·33
40																		O	1	1	–	–			1·0	0	−1·0
127												O	–	–	–	–	1	–	–	1	–	–	1		0·4	0·33	−0·07
368																	O	–	1	–	–	1			0·5	0·5	..
331															O	–	–	1	2	5	2	–	1	–	0·75	0·75	..
																											−0·092 = Mean

O = onset year. Statistical calculations give a value of t = 1·01, $n^{-1} = 56$, 0·4 > P > 0·3.

Discussion

The only firm conclusion that can be drawn from this study is that the administration of artificial pyrexia followed by arsenic, or of arsenic alone, and the administration of anti-histamine drugs in high doses, did not, during the limited period of follow-up, alter the relapse-rate after treatment as compared with that before treatment.

In both groups, however, the treatment was in many cases begun after the disease had been in existence for some years: in both groups the average duration of the disease before treatment began was between seven and eight years.

Treatment of any sort must obviously have the highest chance of success if started early, because of the tendency for symptoms once established to progress. But in the small number of cases in which treatment was begun during the first year of the disease there was no difference in the relapse-rate between the two groups. No untreated group exists to compare with this, but the relapse-rate was of the same order as was determined by history-taking by McAlpine and Compston in 414 cases in the first few years of the disease.

It is possible that either drug, without affecting the number of relapses, modified their duration or severity. This is difficult to establish. For instance, comparison of the duration and severity of the relapse immediately preceding treatment and the first relapse during treatment is invalid. Relapses preceding treatment comprise a selected group, since they were probably severe and long enough to bring the patients to hospital. An earlier relapse can equally be considered selected in so far as it did not bring patients to hospital. There is further a natural tendency for relapses to increase in duration as the disease progresses. For these reasons it was not possible to analyse this material statistically as regards the effect of treatment on the duration and severity of relapses. If, however, this effect had been substantial in one group or the other, it would probably have been reflected in the degree of disability.

TABLE III—ASSESSMENT OF DISABILITY BEFORE AND AFTER TREATMENT IN 72 CASES RECEIVING NEOARSPHENAMINE AND 46 CASES RECEIVING ANTI-HISTAMINE DRUGS

Treatment	Before treatment: Category	Before treatment: No. of patients	Before treatment: Average duration of treatment	After treatment: Category 1	2	3	4	5	After treatment: No change	After treatment: Worse
Treatment with neoarsphenamine	1	34	2·9	27	6	1	..	..	27 (79·4%)	7 (20·6%)
	2	34	2·2	..	19	13	1	1	19 (55·9%)	15 (44·1%)
	3	4	2·3	..	..	1	3	..	1 (25·0%)	3 (75·0%)
Total	..	72	2·5	27	25	15	4	1	47 (65·3%)	25 (34·7%)
Treatment with anti-histamine drugs	1	23	1·6	20	3	..	..	..	20 (87·0%)	3 (13·0%)
	2	16	1·6	..	4	9	2	1	4 (25·0%)	12 (75·0%)
	3	7	1·3	..	..	7	..	..	7 (100·0%)	..
Total	..	46	1·5	20	7	16	2	1	31 (67·4%)	15 (32·6%)

The final criterion of the severity of the relapses in these cases can rest only on further observation of the course of the disease.

No conclusion can be drawn from the effect of either form of treatment upon the degree of disability, firstly because in most cases the treatment was not started until symptoms had been present for several years, and secondly because the period of observation has been too short. Observation for at least five years, and preferably for ten, is needed.

Summary

1. In assessing the effect of medical treatment in disseminated sclerosis the essential criterion is the prevention of fresh relapses. Disability by itself is insufficient evidence.

2. Though ideally an untreated control group should be used for comparison with a treated group, it has been

TABLE II—33 PATIENTS RECEIVING ANTI-HISTAMINE DRUGS. NUMBER OF RELAPSES IN EACH YEAR OF DISEASE

Case no.	Pre-treatment years 20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	Treatment years 1	2	3	Relapse-rate: Pre-treatment years 2–6	Relapse-rate: Treatment years 1–3	Difference
869																	O	1	–	2	1			0·5	1·0	+0·5
840													O	–	–	–	–	1	–	1	–			0·2	0	−0·2
105							O	–	–	1	–	2	–	–	–	1	–	–	1	1	–			0·4	0	−0·4
106															O	–	1	–	–	1	1	–		0·25	0·5	+0·25
120														O	1	–	–	1	1	1	–	–		0·6	0	−0·6
121																O	–	–	–	–	–	–		0	0	..
125	O	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1	2	–			0·4	0	−0·4
126														O	–	–	1	1	2	2	2	1		0·8	1·5	+0·7
128				O	–	–	–	1	–	–	–	–	1	–	–	–	–	1	–	–	–	–		0·2	0	−0·2
141					O	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1		0	0·5	+0·5
143																O	–	–	–	1	1	–		0	0·5	+0·5
196																		O	–	2	1	–		0	0·5	+0·5
209												O	–	–	–	–	–	–	–	1	–	–		0	0	..
619																O	1	–	–	2	–	–		0·33	0	−0·33
433															O	–	1	–	–	–	–			0·25	0	−0·25
343													O	1	–	–	1	–	–	1	1	1		0·2	1·0	+0·8
321																	O	2	–	–	1			1·0	1·0	..
472																		O	–	3	1			0	1·0	+1·0
272															O	1	–	–	–	–	–			0·25	0	−0·25
301															O	–	–	2	–	–	–	–		0·5	0	−0·5
225								O	–	–	–	–	–	–	–	–	1	1	–	–	1			0·4	1·0	+0·6
537																		O	1	1	–	1		1·0	0·5	−0·5
839															O	–	–	1	–	1	–			0·25	0	−0·25
844						O	–	–	–	–	–	1	–	–	1	–	–	–	1	–	2			0·4	2·0	+1·6
55										O	1	–	1	–	1	1	–	–	–	–	–	–		0·4	0	−0·4
90	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	1	–	1	1	0	0·67	+0·67
335								O	–	1	1	1	–	–	–	–	–	1	–	2	3			0·2	3·0	+2·8
129					O	–	–	–	–	–	–	–	–	2	1	1	1	2	1	2	–	–		1·2	0	−1·2
588										O	1	1	–	–	–	–	–	1	1	4	1			0·4	1·0	+0·6
108													O	–	–	–	–	1	1	1	2	–		0·4	1·0	+0·6
485																		O	–	1	–	–		0	0	..
528				O	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–			0	0	..
644													O	1	1	–	–	–	–	1	–			0·2	0	−0·2
																										+0·103 = Mean

O = onset year. Statistical calculations give a value of $t = 1·57$, $n^{-1} = 32$, $0·2 > P > 0·1$.

found possible to analyse treated groups by comparing the relapse-rate before and after treatment.

3. The results in 57 patients treated by administration of artificial pyrexia and arsenic and in 33 receiving large doses of anti-histamine drugs have been analysed. No significant difference in the relapse-rate before and after treatment was evident in either group. In those cases where the treatment was begun within a year of the onset of the disease, there was no difference in the relapse-rate for patients receiving arsenic and for patients receiving anti-histamine drugs.

4. A standard method of assessing the degree of disability, during a follow-up of at least five years, is suggested.

I am greatly indebted to Dr. Douglas McAlpine for allowing me to study his cases and for his advice, and to Dr. Richard Doll, of the Medical Research Council Statistical Research Unit, for his guidance on methods of statistical analysis. The inquiry could not have been made without the cöoperation of the general practitioners who carried out the treatment, and I am very grateful for their help and information. Finally I have to acknowledge the invaluable secretarial aid of Miss Joan Etherington throughout this study.

REFERENCES

Brickner, R. M. (1936) *Bull. neurol. Inst. N.Y.* **4**, 665.
McAlpine, D., Compston, N. D. (1952) *Quart. J. Med.* **31**, 135.
Müller, R. (1949) *Acta med. scand.* suppl. 222.
Schumacher, G. A. (1950) *J. Amer. med. Ass.* **143**, 1089, 1146, 1241.

THE POSITION OF THE FOOT IN WALKING

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LATERAL rotation of the foot in walking has recently been mentioned as a cause of hallux valgus. This position of rotation during walking must, in the absence of bone and joint abnormality, be predominantly influenced by hereditary factors, for it is the torsion or declination angles of the tibia and femur and their variations which are mainly responsible for the position of the foot in walking.

The angle of torsion in the femur is that angle formed by the axis of the knee-joint which is parallel to the posterior surfaces of the condyles and the axis of the femoral neck (fig. 1). Mikulicz (1878), in a detailed study, found that the torsion angle varied from 37° anterior (anteversion) to 25° posterior, with an average figure of 14° anteversion of the neck of the femur. Extremes of this angle are found in congenital dislocation of the hip when the anteversion may reach 90°, and in the condition of slipped femoral epiphysis when posterior angulation is an early and pronounced feature.

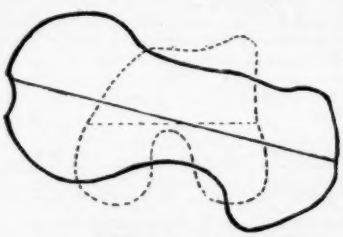

Fig. 1—Torsion angle of right femur.

In the tibia the axis of the ankle-joint is always laterally rotated in relation to that of the knee-joint. The angle varies from 2° to 38°, with a mean figure of 16° (fig. 2). In the fœtus and child, this angle is less and averages 9° between birth and the age of five. In the horizontal plane the axis of the ankle-joint does not meet the tibial shaft at an angle of 90° but passes obliquely medially and upwards.

These observations on the axis of the ankle-joint can be verified anatomically and physiologically. Anatomically, the lateral malleolus of the fibula lies 1–2 cm. inferoposteriorly to the medial malleolus of the tibia and the axis of rotation passes approximately between those two bony points. Physiologically, the position of rest (or of ease in the presence of effusion) is not one of simple plantar flexion but of plantar flexion with inversion.

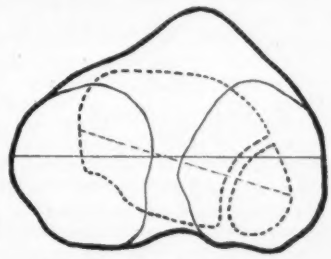

Fig. 2—Torsion angle of right tibia.

The rotary position of the lower limb in walking is governed by the axis of the knee-joint which, even in extremes of genu varum and valgum of metabolic origin, is maintained in the coronal plane.

The axis of the hip-joint during normal straight locomotion is in the coronal and horizontal planes, and bears no constant relationship to the direction of the femoral neck. The capsule and the short rotary muscles of the hip-joint are responsible for the maintenance of this alignment.

The lateral rotation of the ankle-joint is counterbalanced by the medial deviation of the head and neck of the talus in relation to the body of the bone (fig. 3). In the adult the angle made by the neck of the talus with the body of the bone averages 152°, whereas in the child the neck is directed more medially at an angle of 148°.

The rapid growth of the medial longitudinal arch in the foot, which occurs between the third and fourth years and is due mainly to the expansion and ossification of the navicular and medial cuneiform bones, plays a definite rôle in the final position assumed by the normal foot. The adducted forefoot of the infant is corrected at this period, which is a common age for the appearance of Kohler's disease of the tarsal navicular bone. The ætiology of this condition can be associated with the facts that the navicular is the last tarsal bone to ossify, that it is a large, growing, avascular, cartilaginous mass at four years of age, and that it is subject to considerable compression strains in the medial longitudinal arch.

Fick (1910) pointed out that the military position of attention, with the feet at an angle of 90° to each other, was physiologically and anatomically wrong; and he said that the stance was uncomfortable if not impossible for the individual with inturned feet. The rotary position for the feet in walking depends on the torsion angle of the tibia and the adduction or varus angle of the forefoot, and, in fact, bears no relation to the presence or absence of hallux valgus, as has been suggested.

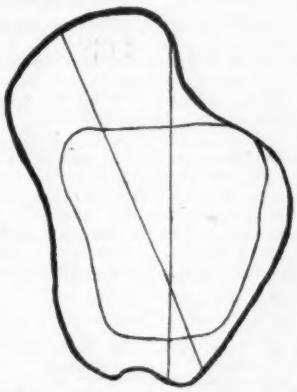

Fig. 3—Superior surface of right talus to show medial deviation of head and neck.

Hereditary features are not limited to facial characteristics, but show themselves in size, build, and gait. Even the well-trained product of the military academy or barrack square reverts back to the family poise and stride in his declining years.

BIBLIOGRAPHY

Fick, R. (1911) Bardeleben's Handbuck der Anatomie und Mechanik der Gelenke. III.
Frazer, J. E. (1946) The Anatomy of the Human Skeleton. London.
Leading article (1953) *Lancet*, i, 331.
Mikulicz, J. (1878) *Arch. Anat. Physiol., Lpz.* p. 251.
Pollard, E. A. (1953) *Lancet*, i, 548.
Lambert Rogers (1953) *Ibid*, p. 602.

FATAL INFECTION BY CHROMOBACTERIUM VIOLACEUM

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Chromobacterium violaceum is commonly found in water and in soil and is generally held to be a harmless saprophyte. It was first recorded as a pathogen by Woolley (1904), in buffaloes in the Philippine Islands, under the name of *Bacillus violaceus manilæ*. Only three previous cases of human infection—all in America—have been published in the generally accessible literature (Black and Shahan 1938, Soule 1939, Schattenberg and Harris 1941), but we have traced some others in Malaya. A summary of all the records known to us is given in the accompanying table. Patterson et al. (1952) have reviewed the published cases of infection by chromobacteria; most of these were infections by *Chr. prodigiosum* (*Serratia marcescens*), which is now regarded as allied to the coliform organisms, whereas it seems fairly clear that *Chr. violaceum* is related to the pseudomonads.

Dr. L. S. da Silva saw his 2 cases in Penang, but the case-notes were lost during the Japanese occupation of Malaya.

One of our cases and Major H. D. G. Hetherington's case were not fully investigated at the time; in both there was a heavy growth of *Chr. violaceum* on culturing the stools, but the strains were not preserved. The heavy growth and the fact that this organism is not commonly encountered in the fæces suggest that *Chr. violaceum* may cause intestinal disease in man but does not establish that it was pathogenic in these two cases.

In our case of urinary infection the bacterium was present in pure culture. Although the clinical details have been lost, this strain was preserved, and it is almost identical in antigenic structure and in virulence with that from case 12, which is described below.

CASE-RECORD

A British Army officer serving in Malaya in February, 1952, developed an ulcer on the left thigh where some equipment chafed, followed by left inguinal adenitis and fever. He received sulphonamides and penicillin without effect, and a week later was admitted to a military hospital. The adenitis had by then almost resolved.

Examination showed a slightly enlarged and tender liver, and the patient complained of right shoulder-tip pain on inspiration. His temperature was 101°F, and a white-cell count showed 14,500 per c.mm. (neutrophils 82%, lymphocytes 15%, eosinophils 2%, monocytes 1%). The ulcer on the thigh was about 1 in. in diameter, shallow, with a black crust, and partly healed; it resembled a scrub-typhus eschar. The left inguinal glands were slightly enlarged and tender.

Treatment and Progress.—Amœbic hepatitis was provisionally diagnosed, and the patient was treated with emetine injections (65 mg. daily) and with aureomycin (2 g. daily) and chloroquine (0·6 g. daily) by mouth. His condition improved; after ten days he was afebrile, and the drugs were stopped. The liver was smaller and not tender. Four days later the patient relapsed, with fever, headache, and neck stiffness. His cerebrospinal fluid was normal. His liver became greatly enlarged and tender in the next few days, and emetine and chloroquine therapy was again started. The day before death about 40 ml. of greenish pus was aspirated from the right side of the liver; this contained no amœbæ but yielded a pure growth of *Chr. violaceum*. The patient died on the twenty-sixth day after admission.

Necropsy Findings.—Necropsy was done eighteen hours after death, the body having been packed in ice meanwhile. The ulcer on the thigh was almost healed. The inguinal glands appeared to be normal. The liver contained about a dozen large abscesses, 1–2 in. in diameter, containing greenish pus and lined by a rough pseudomembrane, and also a great many smaller abscesses. The gall-bladder was normal. The lungs had subpleural abscesses at the bases, and there were small patches of fibrinous exudate on the diaphragmatic pleuræ. The spleen was enlarged and soft. There were no changes in the heart, lymph-nodes, or alimentary system, except for an intramural abscess of the stomach and swelling of the para-aortic nodes. The urogenital system and brain showed no important changes.

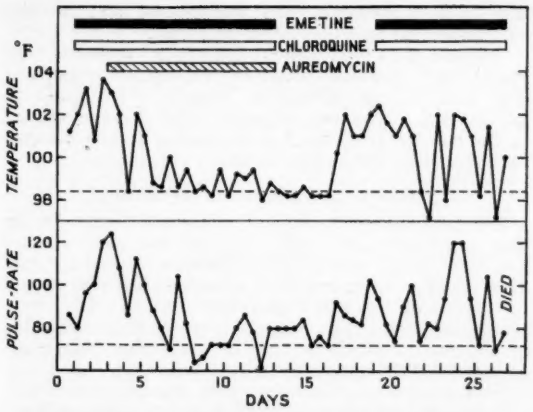
Bacteriology.—Pus from the liver abscesses consisted mainly of necrotic liver tissue, containing many gram-negative bacilli with a tendency to bipolar or irregular staining. No amœbæ were seen. Six liver abscesses and the pleural exudate all gave pure growths of *Chr. violaceum*. Although blood culture was not done during life, the heavy growth of the organism obtained from the spleen confirms the septicæmic nature of the infection. The ulcer on the thigh yielded only skin contaminants. Anaerobic culture yielded no other organisms.

The organism was compared with several strains of *Chr. violaceum* and undoubtedly belongs to that group. It consisted of a gram-negative rod, motile by a single polar flagellum or, not infrequently, two flagella at one pole, without capsule or spores, straight or slightly curved, arranged singly. On nutrient agar after 24 hr. at 37°C the colonies were 1–2 mm. in diameter, round, convex, smooth, shiny, semi-transparent, and pale violet. Later they became larger and deep violet. Culture in broth produced a violet ring of growth, sometimes with a fragile pellicle. In gelatin stab the organism produced infundibuliform liquefaction with a violet pellicle. It grew readily on potato and MacConkey's agar. It was aerobic but grew scantily anaerobically without forming pigment. The optimal temperature was 37°C. Glucose was fermented promptly without gas, maltose more slowly, and starch late. Lactose, sucrose, mannitol, and salicin were not fermented. Methyl-red doubtful. Voges-Proskauer −, nitrate reduction +, H_2S doubtful, NH_3 +, catalase +, indole −. Growth took place in Koser's citrate. The pigment was insoluble in water and chloroform but soluble in alcohol. Plate cultures smelled distinctly of hydrogen cyanide, which was produced in quantity.

CASES OF INFECTION BY *Chrombacterium violaceum*

Year	Reference	Country	Host	Form of disease	Outcome
1904	Woolley (1904, 1905)	Philippine Islands	Buffalo (3 cases)	Regional adenitis and septicæmia	Death in all 3
1927	Lesslar (1927)	Malaya	Man	Pyæmia with liver abscesses	Death
1931	Martin (1931)	Malaya	Man	Pyæmia with liver abscesses	Death
1931	Martin (1931)	Malaya	Man	Urinary infection; no necropsy	Death
1933	L. S. da Silva (unpublished)	Malaya	Man	Pyæmia with liver abscesses	Death
1933	L. S. da Silva (unpublished)	Malaya	Man	Local subcutaneous abscess	Not recorded
1938	Sartory et al. (1938)	Europe	Man	Dental abscess	Not stated
1937	Black and Shahan (1938)	U.S.A.	Man	Skin lesions, later pyæmia	Death (reported by Soule 1939)
1939	Soule (1939)	U.S.A.	Man	Regional adenitis and pyæmia	Death
1940	Schattenberg and Harris (1941)	U.S.A.	Man	Local lesion leading to septicæmia	Death
1951	This study	Malaya	Man	Urinary infection	Not recorded
1952	This study	Malaya	Man	Regional adenitis; later pyæmia with liver abscesses	Death
1952	This study	Malaya	Man	Mild diarrhœa (organism isolated from stools)	Recovery
1952	H. D. G. Hetherington (unpublished)	Malaya	Man	Transient rectal bleeding and diarrhœa (organism isolated from stools)	Recovery

Gauducheau (1907) and Minnett (1911) isolated strains pathogenic for animals from water-supplies in Indo-China and in British Guiana.



Treatment and course of fatal infection by *Chr. violaceum*.

The organism was virulent for guineapigs on intraperitoneal injection of 0·01 ml. of a broth culture, death taking place usually from septicæmia within a day. The organism could be readily recovered from the heart blood. Guineapigs dying after some days had abscesses in the liver and lungs which were similar histologically to those in the patient. Mice and rabbits were also susceptible. Animals were not infected when fed on cultures.

The antigenic structure of chromobacteria presents some difficulties and still is under study. For the present it may be stated that the strain from this case was almost identical with that from our case with urinary infection, and that cross-agglutination was found with strains isolated from water in Malaya. Much cross-agglutination took place between sera made against all our Malayan strains (which were antigenically and culturally smooth) and suspensions of old laboratory strains isolated in various parts of the world, which have become rough through repeated subculture. Sera to the latter sometimes agglutinated the Malayan strains. Thus there seem to be rough antigens common to most strains of *Chromobacterium*.

Histology.—The liver abscesses were of unusual type, showing much necrosis with little cellular reaction. The reaction was mainly polymorphonuclear, with a few lymphocytes and mononuclear cells. The contents were chiefly necrotic liver cells with many gram-negative bacilli. The larger abscesses had a lining of early granulation tissue. The lung abscesses were of the same type, and there were patches of fibrinopurulent pleurisy. Patchy necrosis of the suprarenal cortex was present.

DISCUSSION

This is an uncommon infection. Almost all the cases are from the tropics, and many are pyæmic or septicæmic. In the present case, and in that of Schattenberg and Harris (1941), there was good evidence for invasion through a skin lesion. Several workers have found that the organism is not infectious to animals by mouth.

The virulence of *Chr. violaceum* is now well established (Schattenberg and Harris 1942), but is not great. For the strains from the present case and the case with urinary infection about 1,000,000 living organisms were needed to kill guineapigs inoculated intraperitoneally. Several strains from water in Malaya, and one from Trinidad, we have found to be virulent for mice, confirming the observations of Gauducheau (1907) and Minnett (1911). However, the human strains from the present case and the case with urinary infection were a good deal more pathogenic than those from water.

Very little can be said about the diagnosis and treatment of infection with this organism. In the present case the early response was evidently to aureomycin and not, as thought, to emetine; this shows the danger of giving more than one drug at a time. All the strains we have tested are sensitive to streptomycin, chloramphenicol, aureomycin, and terramycin at concentrations readily attained in the blood. They are resistant to penicillin and sulphadiazine.

Energetic treatment with antibiotics is needed when the infection is diagnosed in time. Probably in many cases of infection the organism has been isolated but dismissed as a contaminant; if a strain loses its power of producing pigment it will be almost impossible to identify, but the smell of hydrogen cyanide may be a clue to its true identity.

The classification of these organisms is very confused, and we hope to publish some further work upon them. For the present we have used the name *Chromobacterium violaceum* in a wide sense. It is, however, clear that strains from all over the world are closely related.

We are indebted to Dr. L. S. da Silva of the General Hospital, Singapore, and to Major H. D. G. Hetherington, R.A.M.C., for details of cases they have observed. Some of this work was done at the Microbiological Research Department, Ministry of Supply Experimental Station, Porton, Wilts., and we are indebted to the Chief Scientist for permission to publish. The assistance and advice of Brigadier F. E. Buckland is gratefully acknowledged. Necropsy material is deposited at the Royal Army Medical College, Millbank.

REFERENCES

Black, M. E., Shahan, J. (1938) *J. Amer. med. Ass.* **110**, 1270.
Gauducheau, M. A. (1907) *C.R. Soc. Biol. Paris*, **1**, 278.
Lesslar, J. E. (1927) *Rep. Inst. med. Res. F.M.S.* p. 28.
Martin, P. H. (1931) *Ibid*, p. 68.
Minnett, E. P. (1911) *Brit. Guiana med. Annu.* p. 44.
Patterson, R. H. jun., Banister, G. B., Knight, V. (1952) *Arch. intern. Med.* **90**, 79.
Sartory, A., Meyer, J., Waeldele, J. (1938) *Bull. Sci. pharm.* **45**, 302.
Schattenberg, H. J., Harris, W. H. (1941) *J. Amer. med. Ass.* **117**, 2069.
— — (1942) *J. Bact.* **44**, 509.
Soule, M. H. (1939) *Amer. J. Path.* **15**, 592.
Woolley, P. G. (1904) *Bull. Bur. Labs Phil. Is.* no. 15.
— (1905) *Johns Hopk. Hosp. Bull.* **16**, 89.

Preliminary Communication

IMMUNISING PROPERTIES OF A UREA-KILLED TUBERCLE VACCINE

ALTHOUGH B.C.G. vaccine is widely used, it has the disadvantage of being unstable and it is made from an attenuated strain which may differ in immunising properties from the virulent tubercle bacillus. A vaccine made from killed virulent organisms would have many advantages, and if a suitable killing and preserving agent were available such a vaccine might have greater protective power than B.C.G. Heat-killed vaccines have been investigated, and recently vaccines killed by ultraviolet light,[1] but neither of these preparations appear to be as good as B.C.G. For the preparation of a vaccine, the killing agent should possess the following properties:

(1) It must not denature strongly the antigens of the organism.
(2) It must kill the organism efficiently.
(3) It should act as a preserving agent, checking autolysis and further breakdown of the organism.
(4) It must preferably be non-toxic to humans.

These conditions are almost completely fulfilled by urea. Urea was used to obtain antigenic complexes from the tubercle bacillus by Haworth et al.[2]; and Iland et al.[3] have shown that saturated urea can extract from living tubercle bacilli a tuberculin protein which retains its antigenic properties. This finding has been

1. Milzer, A., Levinson, S. O., Lewis, M. R. *Proc. Soc. Exp. Biol., N.Y.* 1950, **75**, 735.
2. Haworth, N., Kent, P. W., Stacey, M. *J. Chem. Soc.* 1948, pp. 1211, 1220.
3. Iland, C. N., Jones, A. S., Baldwin, R. W., Gilbert, G. A. *Congr. ints. Microbiol.* Rio de Janeiro, 1950; p. 201.

TABLE I—INCREASE IN SURVIVAL TIME IN GUINEAPIGS IMMUNISED WITH U.K.V. VACCINE

No. of animals	Treatment	Mean mortality (days)	No. alive at 160 days
15	20 mg. U.K.V.	115·5	5
15	None	62·5	0
Test of significance between means, t = 4·226, p = <0·001.			
			No. alive at 188 days
15	20 mg. U.K.V. (washed cells)	105·6	6
15	None	70·0	1

Test of significance between means, t = 4·54, p = <0·001.
All inoculations were given subcutaneously.

confirmed by Seibert [4] and it has been suggested that urea could be used for the routine production of tuberculin.[5]

This communication describes some preliminary experiments which indicate that it may be possible to prepare a potent killed vaccine from virulent tubercle bacilli by the use of urea.

PREPARATION OF THE VACCINE

A strain of virulent human tubercle bacilli was grown as a pellicle on synthetic liquid medium (Long's medium). The four-week-old culture was filtered through a fine metal strainer; the retained mass of organisms was decanted into a glass vessel and treated immediately with an equal volume of crystalline urea. The mixture was well stirred and then left at 37°C for four days. The resulting thick suspension is the crude urea-killed vaccine (U.K.V.), and, on standing, a sediment settles out leaving an opalescent supernatant fluid. Under the microscope the organisms are normal in morphology, and they retain their acid-fast staining but with definite beading as compared with untreated bacilli.

STERILITY TESTS

Samples of the vaccine were centrifuged in sterile tubes, the supernatant fluid removed, and the bacillary sediment washed with sterile phosphate buffer (pH 7·0) to remove urea. The washed bacilli were inoculated on to Löwenstein-Jensen medium and the cultures incubated at 37°C. In all, 20 cultures from 3 batches of vaccine have been incubated and no growth of tubercle bacilli or of other organisms has occurred after six months' incubation. Other samples of the vaccine were inoculated into guineapigs which were left for periods of up to one year. No signs of tuberculosis developed nor could any disease be detected post mortem. 4 animals had doses of 25 mg. of urea-killed cells, but they remained healthy for twelve months, and when killed the original inoculum had disappeared and no sign of tuberculous infection could be found.

Because of its urea content the crude vaccine is "self sterilising" towards common vegetative organisms. For example, staphylococci, streptococci, diphtheria bacilli, and *Bacterium coli* were killed by the vaccine in one hour at 37°C, but a spore-bearing aerobe survived for more than forty-eight hours.

PROTECTIVE EFFECT IN ANIMALS

Two preliminary tests have been carried out. In the first experiment the crude vaccine was used after it had been reduced to a fine suspension by shaking with glass beads. In the second experiment the urea was removed and the killed cells were washed with sterile phosphate buffer (pH 7·0) and were then re-suspended in the same buffer. A smooth suspension was made as before.

Four groups of guineapigs were treated as shown in table I, and thirty days later each animal was inoculated by subcutaneous injection with 0·1 mg. of virulent human tubercle bacilli. The results (table I) show that the vaccine gave a significant degree of protection and that the removal of the urea-extracted protein by washing did not alter the protective power of the vaccine.

A third experiment compared the vaccine with freshly made B.C.G. (batch no. 953, prepared at the Danish State Serum Institute on July 9, 1951). Three groups of guineapigs (20 animals per group) were treated as follows:

Group 1.—Each animal received 5·0 mg. of B.C.G. on two occasions with an interval of eight days between the doses.

Group 2.—Each animal received two doses of 5·0 mg. of U.K.V. with an interval of eight days between the doses.

Group 3.—Each animal received 5 ml. of isotonic saline instead of vaccine.

TABLE III—IMMUNISING POWER OF B.C.G. AND U.K.V. AS ASSESSED BY THE FELDMAN INDEX

Group	No. of animals included	Feldman index			
		Liver	Lungs	Spleen	Total
1 (B.C.G.)	18	18·3	18·0	19·1	55·4
2 (U.K.V.)	18	18·4	20·0	20·8	59·2
3 (Saline)	18	25·5	30·0	32·2	87·7

Maximum theoretical infection = 100.
Injection schedule as in table II.

Thirty days later all the animals were given 1·0 mg. of virulent human tubercle bacilli by subcutaneous injection. Seven days after this the indurated erythematous areas (Koch phenomena), produced at the site of inoculation of the challenge infection, were measured. The results (see table II) show that the U.K.V. vaccine had produced a significantly greater degree of hypersensitivity than the B.C.G. Only four of the B.C.G. animals had ulceration at the injection site, whereas seven of the U.K.V. animals were ulcerated. Fifty days after the challenge infection all the animals were killed and the tuberculous infection assessed by calculation of the Feldman index.[6] The results, given in table III, show that the U.K.V. was as good as, but not better than, B.C.G. in this experiment. Further investigations on the urea vaccine are being made.

SUMMARY

The ability of saturated urea to kill tubercle bacilli has been demonstrated.

The killed organisms still retain their power to produce tuberculin-type hypersensitivity and to increase the resistance of guineapigs to infection with virulent tubercle bacilli.

4. Seibert, F. B. *Amer. Rev. Tuberc.* 1952, **66**, 314.
5. Iland, C. N. Colloquium on Tuberculosis, Medical Research Council of Ireland. Dublin, 1951; p. 39.
6. Feldman, W. H. *Amer. Rev. Tuberc.* 1943, **48**, 248.

TABLE II—HYPERSENSITIVITY PRODUCED BY B.C.G. AND U.K.V. VACCINES IN GUINEAPIGS

Group	No. of animals	Treatment	Challenge dose (mg.)	Mean area of skin erythema (sq. cm.)
1	19	B.C.G. 5·0 mg. (x2)	1·0	1·08
2	18	U.K.V. 5·0 mg. (x2)	1·0	1·33
3	20	None	1·0	0*

Test of significance between groups 1 and 2, t = 3·391, p = 0·001.
* Soft swellings, with no induration.
Immunising doses given intraperitoneally, challenge dose subcutaneously.

In the one comparison made, the urea-killed vaccine (U.K.V.) was equal to a standard B.C.G. vaccine in protective power in guineapigs.

I wish to thank Prof. K. E. Cooper for the facilities of his department, Dr. P. D'Arcy Hart for obtaining the B.C.G. vaccine, and the Medical Research Council for an expense grant.

Department of Preventive Medicine (Laboratory Section), Bristol

C. N. ILAND.
M.B. Lpool, Ph.D. Birm., D.C.P.
Lecturer in Bacteriology, University of Bristol

New Inventions

A BENCH COLD-BOX

LABORATORIES undertaking frequent serological tests (blood-grouping, rhesus antibody detection, &c.) are compelled to use valuable antisera which are scarce. These are normally stored at −20°C in the frozen state, and therefore need to be thawed out before use. To prevent wastage, the batches would have to be very small, so that thawing and refreezing would be reduced to a minimum; but unfortunately there is evidence that very small volumes (fractions of a millilitre) of such sera do not store, without deterioration, as well as larger amounts (1 or 2 ml.).

Bijou bottles containing 1 or 2 ml. require from ten to thirty minutes to thaw from −20°C to the fluid state; hence there is a strong temptation to leave such sera on the bench at room-temperature if they are in intermittent use throughout the day. This contributes to their deterioration and allows bacterial multiplication in the sera.

I have found the following simple device useful in lowering the average temperature to which sera are subjected in routine daily use.

A rustless metal box is nearly filled with tap-water, corked, and placed in the deep-freeze at −20°C overnight, along with the sera. In the morning the box is removed and placed on the bench in a wooden outer container which allows rapid visual and mechanical access to the surface of the metal box, on which the sera in constant use are placed (in their bijou bottles). A lid is unnecessary. The bottles of sera are used and replaced on the cold surface throughout the day, and their temperature does not rise above 6° or 7°C in ordinary laboratory temperatures, or 8°–10°C in hot weather (laboratory temperature of 28°C).

The metal box measures 16 × 10 × 6 cm., has two small handles for easy removal from the wooden outer box, and is stood on end overnight in the deep-freeze, so that the small air space inside is at one end when the box is used on the following day; this ensures that the ice inside is in contact with the upper surface of the box when it is in use. At the end of the working day ice is still present in the box.

In use the box is very convenient, in that bottles can be placed on it and removed from it with one hand, just as freely as if they were being placed on the bench; there is no lid to be opened and shut.

The complete unit can be obtained from Messrs. Matburn, Ltd., 25, Red Lion Street, London, W.C.1, who made the experimental models of different sizes and designs.

Whittington Hospital, London, N.19

A. F. MOHUN
M.D. Lond.

"... The University Grants Committee does not advocate or anticipate any further expansion of the university population in the near future. It inclines to the view that there is little talent capable of benefiting by a university education which does not in fact reach the university; it is concerned rather with a redistribution inside the university which will avoid waste of public money by ensuring that, since more than two students out of every three receive some assistance from public or private funds, they are trained in ways likely to be to the public advantage. It recognises, too, that considerations of economy require that no students should be admitted when incapacity to read for a degree might have been detected before they entered the university. Likewise, by implication, it indicates the importance of awards being financially adequate."—*Nature, Lond.*, Aug. 1, 1953, p. 176.

Reviews of Books

The Emergency Medical Services

Vol. II. Editor: Lieut.-Colonel C. L. DUNN, C.I.E., I.M.S. retd. London: H.M. Stationery Office. 1953. Pp. 492. 50*s*.

THE first volume on the Emergency Medical Services, in the official *Medical History of the War*, dealt with the origin and development of the scheme and the details of its organisation in England and Wales.[1] The first half of vol. II describes the arrangements made in Scotland and Northern Ireland.

In Scotland the principle was agreed that all existing hospitals should continue under their previous managements, under the general guidance of the Department of Health. In each hospital an officer (usually the medical superintendent) was appointed to maintain contact with the hospital officers of the department. New hospitals, however, were organised on a new principle: the Department of Health itself became their managing body, and a hospitals division was set up in the department in 1939. The hospitals of Scotland were transformed from a collection of independent bodies into a single whole, under a common direction, which was responsible for the treatment both of the ordinary sick and of war casualties. Thus the way was prepared, unconsciously perhaps, for the evolution of the health service on lines different from those in England when the war was over. Air-raids over Scotland as a whole were not very serious; but it may come as a surprise to many to read of the attacks on Clydeside where the destruction was terrible.

In Northern Ireland the control of hospitals was decentralised into three areas, to avoid the risk of bombing of headquarters in Belfast. Northern Ireland was not extensively raided, but Belfast suffered heavy loss of life in a raid which was one of the worst of the war because it caught Easter holiday-makers returning home.

The latter half of the volume, which is concerned with the air-raids on London and the Provinces, contains much information of interest—details of the sector organisations, and tables of casualties in the various periods. On the average, a quarter of a ton of bombs was dropped for each person killed. All this general matter is arranged with lucidity and brevity.

Colonel Dunn then gives a picture of the raids and of their medical implications, by the ingenious method of allowing those personally concerned to report on what happened in selected boroughs in London and towns in the provinces. In this way he combines the advantages of vivid presentation and selection of detail without wearisome repetition. The narratives are skilfully larded with stories, which brighten them without weakening them, and a general picture is built up out of living detail. The whole thing is a very able piece of editing. The illustrations are also well chosen: instead of the usual pictures of countesses opening mobile canteens, they are genuine action pictures. Many of them recall (all too clearly) once familiar sights: others show scenes which only a few actually saw.

This volume is not only a record but also a constructive criticism. All through the narrative are suggestions of what might have been done better, of lessons learnt, even of criticism of what was done—an unusual feature in an official document. The volume is history as it should be: a record of what happened designed to help if it should ever happen again.

Tropical Victory

An Account of the Influence of Medicine on the History of Southern Rhodesia, 1890–1923. MICHAEL GELFAND, M.D. Cape Town, F.R.C.P., Southern Rhodesian Government Medical Service. Cape Town and Johannesburg: Juta. 1953. Pp. 256. 10*s*. 6*d*.

THIS book, sponsored by the Rhodes Centenary Celebrations Committee, is a fine tribute to Cecil John Rhodes, the founder of Rhodesia, and to those who later shouldered his responsibilities. In spite of ignorance, dirt, and disease, and under appalling conditions, the early pioneers succeeded in leaving to posterity a vigorous country full of confidence and energy. The

1. See *Lancet*, 1952, ii, 1023.

price paid for this achievement was high, especially among nurses and doctors. These laid the foundations of the medical service as we know it today, from which has evolved the most elaborate clinic system in Africa, as well as the most comprehensive free health service. Dr. Gelfand has painted a picture of the main events in the medical and social development between 1890 and 1923.

In addition to an outline of history of Mashonaland, the book deals with Dr. Jameson (of Raid fame), and early pioneer doctors of the British South Africa Company. The evolution of Fort Salisbury and the town of Bulawayo, the Matabele and South African wars, mine hygiene, municipal health, malaria, blackwater fever, rabies, abortus fever, bilharziasis, and influenza epidemics are vividly described. A chapter on doctors tells of many who contributed to Rhodesian health; especially Dr. A. M. Fleming and Dr. P. A. Nightingale, the second of whom as early as 1912 recognised "zeeism," the prototype of pellagra. And here is the story of the early struggles of Sir Godfrey Huggins, prime minister of Southern Rhodesia, who through his profession won his way to a distinguished position in the political life of the British Commonwealth.

To Define True Madness

Commonsense Psychiatry for Lay People. HENRY YELLOWLEES, O.B.E., M.D., F.R.C.P., D.P.M., consulting physician, St. Thomas's Hospital, London. London: Sidgwick Jackson. 1953. Pp. 215. 12*s.* 6*d.*

THE concluding chapter of Dr. Yellowlees's latest book, besides being the most charming and interesting part of it, provides the key to the nostalgic tone of what goes before. Born into the household of the physician-superintendent of one of the Scottish "Royal Mental Hospitals"—Gartnavel, near Glasgow—where he and his brother and sister were in daily contact with the inmates, Dr. Yellowlees grew to accept the insane unquestioningly as fellow-creatures, and to treat them at all times with the consideration and courtesy a well-brought-up child was then expected to show to his elders. The decline of this old-fashioned approach to the insane—which contributed much to the clinical sense of the older generation of psychiatrist—has, he thinks, diminished the quality of modern psychiatry, though he pays tribute to the superior technical skills that have been developed. He is appalled by the continued ignorance of the layman—an ignorance born of fear of the unknown—which expresses itself too often in easy gibes at the psychiatrist and a callous, punitive attitude towards the mentally ill.

The intelligent and open-minded layman who wishes to learn something about a subject which many people assume to have "nothing in it," will find much to interest and instruct him in these pages. No medical knowledge is assumed on the reader's part, and the psychiatric topics chosen, as well as being of general interest, lend themselves readily to exposition in everyday language. Dr. Yellowlees gives a simple account of some psychological theories and some common mental illnesses, including depression, the inferiority complex, anxiety neurosis, and delusions. He also describes the methods employed in treatment by suggestion, and discusses the criminal responsibility of the insane. His summary of the development of the modern legal attitude towards this last problem is very sound.

The style mirrors the humanity, adaptability, and humour of the writer.

Congenital Anomalies of the Heart and Great Vessels

MAURICE A. SCHNITKER, M.D., F.A.C.P., director of medicine, St. Vincent's Hospital, Toledo, Ohio. New York and London: Oxford University Press. 1953. Pp. 306. 63*s.*

WITH appropriate attention to relevant detail Dr. Schnitker presents a well-balanced critical review of present-day conceptions of congenital cardiovascular disease. The book adopts the universally accepted if arbitrary classification of Maude Abbott, using the three principal disease groups—cyanotic, *cyanose tardive*, and *morbus caeruleus*. The background of basic morphological and physiological principles is outlined, and proper emphasis is laid on those congenital disorders most commonly seen in clinical practice. The author offers some useful generalisations on prognosis and treatment, and on the ability of these patients to withstand pregnancy, surgery, and infections, but on the whole expresses few original views. His monograph will be of value as a comprehensive reference book, and as a fairly balanced review of the subject. It is agreeably printed and contains an ample bibliography, but would be improved by a more liberal use of illustrative plates.

A Practice of Thoracic Surgery

A. L. D'ABREU, O.B.E., CH.M., F.R.C.S., thoracic surgeon, Queen Elizabeth Hospital, Birmingham. London: Edward Arnold. 1953. Pp. 591. 80*s.*

To discover the current practice students of chest surgery usually have to consult a variety of periodicals; for there is a dearth of books surveying the subject comprehensively. Mr. d'Abreu's book is full and well balanced, accurately presenting British practice, with appropriate emphasis on clinical and pathological aspects as well as on technique. He is himself responsible for all chapters except for those on one or two specialised subjects, such as lung function (admirably written by Dr. K. W. Donald) and cardiac catheterisation and angiocardiography. (In their length these special chapters are perhaps a little out of proportion to the rest, but they are excellent in content.) Though there is some uneven writing, each subject is fully discussed and the information is up to date. Accounts of modern heart operations are succinct and as complete as present experience permits, though a few more illustrations might have been helpful. The production and the reproductions of radiographs are good, and at the end of each chapter there are a few well-selected references.

Symptoms and Treatment of Acute Poisoning

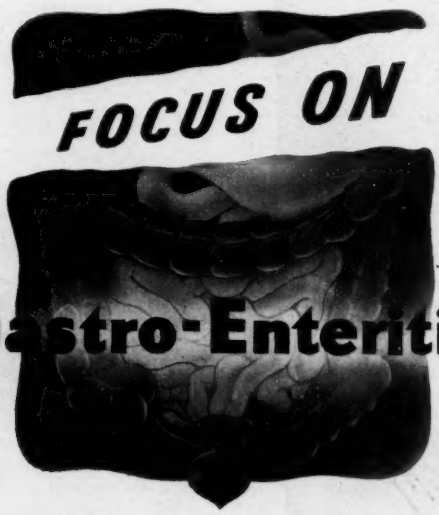
G. H. W. LUCAS, professor of pharmacology, University of Toronto. London: H. K. Lewis. 1953. Pp. 320. 27*s.* 6*d.*

THIS sensible little book gives a clear and concise account of the symptoms and mode of poisoning by drugs in common use, and offers dogmatic recommendations on treatment. The drugs are dealt with in alphabetical order, and it is helpful to find among them sections on mushroom poisoning, snake-bite, insect stings, rat poisons and hair dyes. Separate sections of the book contain notes on the procuring of samples for analysis for medicolegal purposes, lists of fatal doses, and an extended discussion of the methods of treatment advised in the text. Emphasis is rightly laid on the superiority of gastric lavage over the use of emetics. The advice proffered is always thoroughly practical, and the book should be kept beside the stomach-pump in every hospital casualty department.

Problems of Consciousness

Transactions of the Second Conference, March 1951. Editor: HAROLD A. ABRAMSON. New Jersey: Josiah Macy, Jr., Foundation Publications. 1952. Pp. 178. $3.25.

INFORMAL discussion between people of differing education and interests can be profitable to them even when it is slipshod and trivial or punctuated by testy exchanges. Such characteristics, however, make it rather profitless to eavesdroppers: overhearing the conference here made available to us verbatim, the listener is inclined to deplore that those who took part varied so widely in capacity to stick to the point, reason, and express themselves lucidly. There were twenty-one of them, not all present at each session; they talked about scientific method under various guises most of the time, and could not agree. A moderator of the actual discussion, an editor of the record of it, and a commentator on its value and outcome would make publication easier to justify. The raw material of misunderstanding is unedifying: it points a moral, no doubt, but one that runs counter to the belief expressed by the medical director of the Josiah Macy Foundation in his introduction to the book. He thinks that an unaltered transcript of such discussions discloses a picture of "what actually goes on in the minds of scientists and of the rôle which creativity plays." Not when they talk about psychopathology.



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THE LANCET
LONDON: SATURDAY, AUGUST 8, 1953

Cortisone and Corticotrophin in Blood Diseases

IT is over two years since we reviewed the first reports suggesting that cortisone and corticotrophin (A.C.T.H.) might be useful in the treatment of some blood diseases; the most important possibility was that these substances might induce remission in acute leukæmia. The idea of using cortisone in blood disease was based on experiments in rodents. Results in man have been somewhat different, but this is not surprising since the blood-forming tissues of rodents are known not to be good indicators of what is likely to happen in human disease.

Since acute leukæmia is so fatal and so often affects children, the results in this disease are especially important. The Medical Research Council's Hæmatology Panel [1] recorded a gloomy picture; of 37 cases of acute leukæmia treated with corticotrophin and cortisone, only 1 showed a long response, while 1 other showed a partial response. These results were criticised by DAMESHEK,[2] who thought that the doses used were much too small. He stated that in the acute and subacute lymphocytic leukæmia of infancy and childhood complete remission could be expected in 50–60% of the patients; and if the cortisone was combined with a folic-acid antagonist, such as aminopterin, remission was obtainable in almost every case; as a rule, the remission lasted only two to four months, but in some patients it persisted longer than a year. These two views seem to represent the nadir and the zenith of the value of corticotrophin and cortisone in acute leukæmia; most other reports fall somewhere between them.

STICKNEY and BENNETT [3] treated 12 patients with cortisone, and 6 with corticotrophin; the adults were given up to 300 mg. of cortisone, or 200 mg. of corticotrophin, daily for twenty to thirty days, with reduced doses if signs of intolerance appeared. Of the patients treated with cortisone, 2 had complete clinical remissions with normal blood and bone-marrow after total doses of 5 and 2 g. respectively, but the remissions lasted only five weeks and six weeks; 1 patient had a complete remission, lasting sixteen weeks, after receiving 2·9 g. of corticotrophin; another patient remitted after 2·5 g. but died later with cerebral symptoms, and examination of the brain showed a form of cerebral degeneration that was attributed to the corticotrophin. STICKNEY and MILLS [4] recommended that in the acute leukæmia of children the dose of cortisone should be 100–200 mg. daily by mouth and of corticotrophin 40–80 mg. daily by intramuscular injection; they also gave blood-transfusions and antibiotics, kept the patients on a low-sodium diet with added potassium, and gave testosterone. They declared that with this régime remissions ensued in up to 75% of patients; the remissions lasted from a few days to several months and relapses could be treated again with a fair chance of success, but within a year most of the patients were dead. ADAMS et al.[5] treated 10 patients; there was complete remission in 1 case of acute myeloblastic, 1 of acute lymphoblastic, 1 of subacute lymphocytic, and 1 of unclassified acute leukæmia; they all succumbed to later relapses. BIERMAN et al.[6] applied a régime similar to that of STICKNEY and MILLS to 15 children with acute leukæmia, but gave them alternating courses of corticotrophin and cortisone, each course lasting seven to ten days. There were only transient remissions, except for 1 child with subleukæmic lymphocytic leukæmia who was still alive two years after diagnosis. The average duration of life from onset in their patients was 6·8 ± 1·4 months; in 59 children not treated this way, survival was 5·9 ± 0·5 months, so the effect was not striking. MAGNIN and MEYER [7] have reported 8 remissions in 17 patients with acute leukæmia treated with a combination of folic-acid antagonists and cortisone or corticotrophin plus the usual blood-transfusions and antibiotics; in 6 cases the remission had lasted six months or more.

Spontaneous remissions can occur in acute leukæmia, especially in children; DREYFUS [8] and SOUTHAM et al.[9] have recorded remissions as long as, or longer than, any yet observed to follow treatment with cortisone. In a series of 150 cases there were 6 complete remissions; in 4 of these 6 cases treatment was supportive only, and these patients survived forty-six, thirty-four, thirty, and twenty-eight weeks. The pattern of the cortisone-induced remission is an odd one; STICKNEY and MILLS point out that there is first reticulocytosis with increased platelets as well, then the abnormal leucocytes are replaced by normal types, and finally the red cells and hæmoglobin rise; in complete remission neither blood nor bone-marrow shows any evidence of leukæmia. The fact that second remissions have been obtained also supports the view that these hormones are having a definite effect. Unfortunately no-one has yet been able to detect which patients are likely to respond; and since this form of treatment can produce remission in some, it ought to be given to all.

Another observed experimental effect of corticotrophin is reduction in the concentration of circulating antibodies—though this has since been denied by CLEARKIN.[10] Because acquired hæmolytic anæmia is so often associated with the presence of antibodies, corticotrophin and cortisone have been given to patients with this syndrome, with varying degrees of success. All accounts agree that these substances are of no value in other forms of hæmolytic anæmia, such as congenital acholuric jaundice. Here again the Medical Research Council Panel [1] recorded poor results—3 out of 11 responded—and here again DAMESHEK [2] criticised their report on the ground of inadequate dosage. He had found that of 22 cases treated with doses of up to 300 mg. daily there were complete remissions in 11 where the Coombs test was positive, and in 3 where it was negative; in 6 cases there was partial improvement; and only in 2 complete failure.

DAMESHEK et al.,[11] however, describing some of these cases in detail, noted that even in remission the Coombs reaction remained positive, and that in some patients there was a rapid relapse when treatment was stopped.

1. Medical Research Council Hæmatology Panel Report. *Brit. med. J.* 1952, i, 1261.
2. Dameshek, W. *Ibid*, 1952, ii, 612.
3. Stickney, J. M., Bennett, W. A. *Acta Un. int. Cancr.* 1952, **8**, 573.
4. Stickney, J. M., Mills, S. D. *J. Amer. med. Ass.* 1952, **150**, 1278.
5. Adams, W. S., Valentine, W. N., Bassett, S. H., Lawrence, J. S. *J. Lab. clin. Med.* 1952, **39**, 570.
6. Bierman, H. R., Kelly, K. H., Shimkin, M. B. *Calif. Med.* 1952, **77**, 238.
7. Magnin, G. E., Meyer, O. O. *Wis. med. J.* 1953, **52**, 120.
8. Dreyfus, B. *Rev. Hémat.* 1948, **3**, 29.
9. Southam, C. M., Craver, L. F., Dargenon, H. W., Burchenal, J. H. *Cancer, N.Y.*, 1951, **4**, 39.
10. Clearkin, K. P. *Lancet*, 1952, i, 183.
11. Dameshek, W., Rosenthal, M. C., Schwartz, L. I. *New Engl. J. Med.* 1951, **244**, 117.

SACKS et al.[12] treated 8 patients and obtained sustained remission only in the 2 who had cold agglutinins present; in the others relapses occurred when treatment was stopped. 5 had their spleens removed without complications, and 3 of these needed no further treatment. ROSENTHAL et al.[13] tried hydrocortisone (compound F) in acquired hæmolytic anæmia, but judged it inferior to cortisone. SAINT and GARDNER[14] recorded an interesting experience. In a patient with acquired hæmolytic anæmia who had developed a hæmolytic crisis after splenectomy treatment with corticotrophin was followed by a strikingly rapid recovery. This patient had a positive Coombs test, and agglutinins were present in the serum; during the treatment with corticotrophin these agglutinins disappeared, but they returned at a low concentration when treatment was stopped; the patient, however, did not relapse. DAVIDSON et al.[15] had 2 patients who responded to treatment; and DAVIS et al.[16] had good results in 3 out of 4 patients. The 1 failure had a negative Coombs reaction; another of their patients who had responded well, without transfusions, developed serious mental symptoms that persisted. ROSE and NABARRO[17] have used corticotrophin in 3 children who had the acquired type of hæmolytic anæmia; in 1 aged six months, and 1 aged eight years, corticotrophin produced a good response, but the patients relapsed when treatment ceased. Splenectomy had no effect on either patient, so further treatment was given; in the infant permanent recovery eventually occurred, while in the child of eight maintenance treatment of 75 mg. cortisone daily was needed. The 3rd patient responded well to a three-week course of corticotrophin.

Acquired hæmolytic anæmia is known to remit spontaneously, especially in children; and it is undoubtedly difficult to decide how far corticotrophin and cortisone are really active, particularly since evidence of antibody activity, such as the Coombs test gives, remains even after remission. WIENER et al.,[18] who have discussed this difficulty, recall that WIDAL and his associates in France, who originally described the condition in 1908–09, recorded similar remissions which they attributed to the iron then in vogue as the proper treatment.

One of the earliest signs of remission in acute leukæmia treated with cortisone is a rise in the platelet-count, apparently from stimulation of megakaryocyte activity; corticotrophin and cortisone have therefore been tried for the treatment of idiopathic thrombocytopenic purpura. STEFANINI et al.[19] studied 8 cases in detail, but the only really satisfactory response that their records show was in a boy of five who had had purpura for only four days; the improvement, they agree, was probably spontaneous. Of the other cases 4 showed partial improvement, and 3 no response. Nevertheless they recommend the use of cortisone or corticotrophin to tide patients over the acute phase, to reduce bleeding before splenectomy, and possibly where there has been no response to splenectomy. WILSON and EISEMANN[20] record a case in which the spleen had been removed without effect; there was also no response to corticotrophin, but the patient recovered when cortisone was given. Of 11 other patients, 4 responded to moderate doses of cortisone or corticotrophin and 1 relapsed when treatment ended. DAVIDSON et al.[15] report that of 8 patients who were given corticotrophin 100 mg. daily, or cortisone 100–200 mg. daily, 3 were apparently cured; but all had short histories. These workers also had a patient who had not responded to splenectomy and did not respond to corticotrophin, but did respond—so long as treatment was continued—to cortisone. These results are not very encouraging, since the responses occurred in the type of patient, or at the time in the course of the disease, when spontaneous remission might be expected.

Treatment with corticotrophin and cortisone has also been tried, and failed, in children with Schönlein-Henoch purpura,[21] and in paroxysmal nocturnal hæmoglobinuria.[22] VIRKUNNEN[23] recorded a response in 1 of 2 cases of thrombocytopenic purpura due to gold; and he thought that in 2 cases of agranulocytosis due to gold the recovery might be attributed to the corticotrophin given.

Two years' further experience has damped our hopes about the value of corticotrophin and cortisone in blood diseases, and has once again demonstrated the difficulty of assessing the effect of treatment in diseases liable to spontaneous remission. The use of these compounds will probably now be limited to the treatment of acute leukæmia, and of acquired hæmolytic anæmia where there is evidence of antibody activity—especially if splenectomy fails. Perhaps they will be tried, too, in the few cases of idiopathic thrombocytopenic purpura that do not respond to splenectomy. The leukæmic response certainly merits further study, since we cannot differentiate between the potentially good and bad responders, and we really have no idea how the corticotrophin or cortisone provoke the remarkable return to normality of the blood-forming tissues. If we knew how this action occurred we might have a better chance of maintaining the normal state.

Inequalities in Education

"The harmonising of individual rights with the common good is a problem which faces all human societies."

A PROBLEM, as Prof. T. H. MARSHALL, giving the Galton lecture,[24] went on to imply, much complicated by the individuality of individuals and the all too human behaviour of human societies. He was discussing social selection in the Welfare State, with particular reference to selection through our educational system. The common good, in this instance, requires a balanced supply of people with different skills and aptitudes who have been trained to make the best contribution in their power to the general welfare; and nowadays we have estimates of the numbers of scientists, technicians, doctors, nurses, teachers, and others whom the country needs. On the other hand, it is the right of each child to receive an education suited to his character and abilities; and, moreover, his parents have a rather ambiguous right to have their wishes in the matter considered. There has never been any reason to assume that the independent operation of these two factors—of general social needs and individual rights—would lead to the same results; and in

12. Sacks, M. S., Workman, J. B., Jahn, E. F. *J. Amer. med. Ass.* 1952, **150**, 1556.
13. Rosenthal, M. C., Spaet, T. H., Goldenberg, H., Dameshek, W. *Lancet*, 1952, i, 1135.
14. Saint, E. G., Gardner, H. J. *Med. J. Aust.* 1952, ii, 305.
15. Davidson, L. S. P., Girdwood, R. H., Swan, H. T. *Brit. med. J.* 1952, ii, 1059.
16. Davis, L. J., Kennedy, A. C., Baikie, A. G., Brown, A. *Glasg. med. J.* 1952, **33**, 263.
17. Rose, B. S., Nabarro, S. N. *Arch. Dis. Childh.* 1953, **28**, 87.
18. Wiener, A. S., Samwick, A. A., Morrison, M., Loewe, L. *Amer. J. clin. Path.* 1952, **22**, 301.
19. Stefanini, M., Santiago, E. P., Chatterjea, J. B., Dameshek, W., Salomon, L. *J. Amer. med. Ass.* 1952, **149**, 647.
20. Wilson, S. J., Eisemann, G. *Amer. J. Med.* 1952, **13**, 21.
21. Philpott, M. G., Briggs, J. N. *Arch. Dis. Childh.* 1953, **28**, 57.
22. Kalant, N., Cyr, D. P. *Blood*, 1952, **7**, 607.
23. Virkunnen, M. *Arch. intern. Med.* 1952, **90**, 580.
24. *Eugenics Rev.* 1953, **45**, 81.

fact, of course, it is impossible to balance them exactly. Nevertheless there are principles which must be kept in mind in all our uneasy shuffling to do the best we can for both; for the risk is always that the individual will be unduly squeezed to fit a neat administrative pattern, or possibly inflated to stop an unforeseen administrative gap.

Particularly is this so when the State is in full command of a whole situation—as happens to be the case, Professor MARSHALL points out, with selection for secondary education. "It provides the primary schools which prepare children for the examination, it designs the secondary school system for which they are being selected, and therefore determines the categories into which they are to be sorted, and it invents and administers the tests." It is a situation in which one is apt to find what one is looking for, and to congratulate oneself on the accuracy with which Nature copies art. The intention of the Education Act of 1944 that competitive selection for secondary education should be replaced by allocation to suitable schools has not yet been put into effect; and some little time may elapse before it is. This perhaps gives us an opportunity to think about its implications and those of its suspension.

Allocation represents individualism—the right of each child to receive the education best suited to its unique individual needs, without regard to the cost of providing the necessary schools and teachers, or the demand in society for the numbers of people trained in particular ways. But the State is obliged to take account of such things, as well as of the capacities of a particular child, and may therefore favour provision of fewer grammar-school places than are needed for all who could benefit from grammar-school education. And as long as this happens, Professor MARSHALL says, competitive selection will remain with us. This inevitably brings some injustices; for when faced with the task of filling the last 5 places in a grammar school from 20 applicants, all backed by ambitious and determined parents, what are teachers to do but follow the marks or toss up? The public, in fact, probably prefer teachers to go by the marks, even though teachers know that in this border zone marks have no real validity. But then, would allocation do away with all injustices? No amount of improvement in the methods of testing, Professor MARSHALL thinks, would make tests sufficiently exact "to carry the weight of decisions enforceable against parental wishes." The question to be answered would no longer be: "Is this child better suited to a grammar school than the other applicants?", but "What, as judged by absolute standards, is the education best suited to this child's needs?"—a question which is well-nigh unanswerable, especially if the answer is to be used as a basis for action. The result might be, instead of allocation, a sort of advisory service which left the decision to the parents. And how closely will the parents' decisions chime with the needs of the community for people trained in various ways? Again, though it seems fair to ensure that all children should be judged by the same procedure, as impartially and impersonally as possible, we have to remember that the 11-year-olds to be tested come from homes and schools and neighbourhoods of different kinds, and they cannot be judged by their attainments only. Their latent capacities will not even be revealed by a school record or a teacher's judgment: objective tests are needed. We must keep in mind, too, that all are not equally gifted and that equality of opportunity does not mean "an equal chance of showing that we are all equally clever," but rather an equal chance to reveal differences, some of which are superiorities. These differences need for their proper development different types of education, some of which, Professor MARSHALL thinks, may legitimately be regarded as higher than others. The notion that selection, even competitive selection, can be eliminated from our educational system thus seems to him illusory.

Some social and economic inequalities, he believes, will always have to be preserved in the Welfare State; and these differences naturally affect the outlook of parents. How the outlook may differ in different groups has been partly revealed by a still unpublished study—from which he was able to quote—made at the London School of Economics during the past four years.

A sample survey was made of 10,000 people aged 18 and over in Great Britain in 1949; they were grouped for occupational status on the Hall-Jones scale, in which groups 1 and 2 include the professional and managerial occupations, groups 3 and 4 the supervisory and clerical, group 5 routine non-manual and skilled manual jobs, and groups 6 and 7 semiskilled and unskilled manual labour. Some 30% of the sample fell into the first four groups, which roughly represent the middle class (the upper class is too small to appear in the sample); group 5 contained a further 40%, and the remaining 30% fell into groups 6 and 7.

The social forces holding a son to the occupation of his father were strongest in groups 1 and 2 and weakest in group 5. That is to say, money and influence count for most at the top; and "life's chances lie most widely open, for good or ill, in the middle of the scale"—in the families of men in routine manual and non-manual skilled jobs. There was a surprising amount of downward movement: among the male subjects in the sample, 35·2% had the same occupational status as their fathers, 35·5% had a lower status, and only 29·3% had risen; but it must be remembered that some of the men in the sample were young, and had not yet reached their final occupational standing. At one time it was supposed that upper-class and middle-class jobs were increasing faster than jobs in general, but the 1951 Census shows that this is true only of women's employment. The proportion of occupied men in such jobs showed no significant increase between 1911 and 1951, whereas the occupied women in such jobs rose from 24·5 to 45·5%.

Professor MARSHALL drew another general conclusion from the survey—that "it is harder than one might suppose to ensure that the new opportunities created go to the people for whom they are intended, provided the fundamental principles of a free democracy are observed." Thus the percentage of grammar-school boys in families belonging to groups 1, 2, and 3 rose from 38·4 among boys born in 1890–99 to 45·7 for those born in 1920–29. Over the same period the corresponding figures for boys in group 5 were 4% and 10%. This increasing use of the grammar schools by the middle class was, he thinks, inevitable. As the quality of the elementary schools improved, more and more members of this class used them, and of course more and more of the children competed for places in secondary schools; and since they were

backed by a better educational tradition and stronger parental support, and because they came from more comfortable homes where it was easier to work, and had parents who could afford to forgo their possible earnings, they did better than children from other groups. Today, working-class children predominate in the modern schools, while middle-class children predominate in the grammar schools; and according to another study [25] this uneven distribution cannot be attributed solely to the intelligence of the children but is partly the result of social forces. Nearly two-thirds of the working-class children in grammar schools come from small families, and only just over a third come from families with 3 or more children; in the modern schools these proportions are reversed. Moreover, the interest of parents in their children's education, and their ambition for them, is inversely correlated with family size.

An inquiry in one county showed that preference for a grammar-school education for children fell as the social scale declined, but not as far as might be convenient from the administrative point of view. Thus the group with the lowest proportion wanting a grammar-school education for their children was 43·4%, and these were the unskilled workers. This group also contained the highest proportion wanting a modern-school education, but the figure was only 23·9%. There is thus a widespread feeling that the grammar-school education is preferable to any other, and a corresponding idea among many parents that a modern-school education is a catastrophe and disgrace. Yet over two-thirds of the unskilled worker parents preferring the grammar school did not want their children to stay there after 16. The aspirations of parents of grammar-school children thus range from a steady job with good prospects when he leaves at 16 to a university and a professional career. Such widely differing ambitions make it difficult to achieve a homogeneous atmosphere in the school. Of a sample of working-class parents asked what occupation they would like their sons to enter, over a fifth chose a profession, but the commonest choice (well over a third) was for a skilled trade. Only about 8% favoured a clerical job, and here parents and sons were at one; for though the girls leaving a school in Lancashire put office work as their first choice, the boys put it at the top of the list of jobs they most definitely rejected. This is perhaps rather cheering, suggesting a return of the craftsman in a new guise.

One troublesome thing is that working-class boys in grammar schools are apt to have high expectations of rising in the world, and may overrate their chances; whereas middle-class boys in modern schools expect to fall below the position of their parents. In fact the whole notion of three types of school, all of equal status, has already proved to be untenable. For the fact remains, as Professor MARSHALL puts it, that "some children are more able than others, that some forms of education are higher than others, and that some occupations demand qualities that are rarer than others and need longer and more skilled training to come to full maturity, and that they will therefore probably continue to enjoy higher social prestige."

25. Halsey, A. H., Gardner, L. *Brit. J. Sociol.* March, 1953, p. 60.

He concludes that competitive selection must remain with us to a considerable extent, but argues strongly for "courses of secondary education" rather than "types of secondary schools." For a system which sorts the children out by general ability, and then passes them through watertight schools to appropriate grades of employment is going to emphasise differences between occupational groups, as well as the correlation between social class and type of school. We shall, in fact, be in danger of grooming children for a governing class—the "unified élite" described as the characteristic feature of a totalitarian society. We, as a democracy, like to draw our leaders from all sorts of conditions of men, who by their outstanding ability have climbed ladders other than the educational one; and it is important, Professor MARSHALL says, to preserve these other ladders. Education can never be identified with an educational label; and he stigmatises as "a pernicious thing" the snobbery of such a label, certificate, or degree—the prestige of a title often bearing "little or no relation to the value of the content." From some of the dooms he foresees we are at present protected by competitive selection rather than allocation; but others are already operating. For an ambitious youth an education at a modern school may easily prove a more awkward possession even than a shorter birth-certificate. Professor MARSHALL has done his best to put us on our guard—and on our mettle.

Annotations

ATTACK ON FLIES

WE are encouraged in our belief that the world is growing up by the almost universal acceptance of the idea that a modicum of fundamental knowledge is needed for the solution of even the most everyday biological questions. Somewhat later than the sportsman, the hygienist has learned that if you wish to destroy an animal you must have some knowledge of its habits. The fly-swatter was a sporting weapon and the sticky flypaper a low poaching dodge, but both were abandoned long ago by the professional muscicide. Some papers published lately by the World Health Organisation contain several elegant illustrations of modern technique in fly control.

In Egypt it was found that it is an outdoor temperature of over about 75°F which drives the flies indoors; when it is cooler they prefer to frolic in the sun.[1] We wish we could turn this promising observation to our own advantage in this country, but unfortunately we lack the necessary local knowledge. In houses in Palestine which are sprayed regularly with D.D.T. the majority of the flies are now resistant to this compound. Nevertheless, they do not choose to sit on the walls and ceiling but prefer the doors and windows and, above all, the furniture.[2] The identification of the favourite resting-ground of a fly is no academic whimsy but a valuable guide in the use of costly insecticides; it is difficult in this country to realise how much money might with advantage be spent on insecticides in warmer climates. The trouble is that no-one cares to have his furniture coated with insecticides in a kerosene base, and another suggestion, this one from Ceylon, deserves further exploration.[3] It has been known for years that

1. Madwar, S., Zahar, A. R. *Bull. World Hlth Org.* 1953, 8, 513.
2. Mer, G. G. *Ibid*, p. 521.
3. Chow, C. Y., Thevasagayam, E. S. *Ibid*, p. 491.

for reasons which are quite obscure a fly likes to sit upon a grid-like surface. The exclusion of flies from a tent by means of one-inch fish netting, a simple conjuring trick to the inexperienced, is probably an example of this. A cheap and efficient fly-trap can be made from a wooden rectangular frame laced, after the fashion of an Indian charpoy, with string impregnated with insecticide. Trials in hospital wards and kitchens, not far from a prolific breeding-ground of flies, showed not only a most encouraging kill under each frame but an appreciable reduction in the active airborne population. This method is worth a trial in our own kitchens and it must not be thought that research on these questions is limited to warmer climates. The report [4] for 1952 of the Pest Infestation Laboratory mentions the finding of house-flies which were more resistant than normal in a shop regularly sprayed with D.D.T. A change to gammabenzene (B.H.C.) put an immediate end to their intransigence and there seems no risk of the widespread emergence of a resistant strain. To the hygienist, the laboratory's observations on blowflies are more interesting. Refuse dumps are only too commonly infested with these beastly creatures and, by marking them with a phosphorus tracer, they have been shown capable of migration for several miles. Control by the intelligent use of D.D.T. is not expensive but it has resulted in the appearance of some resistant strains. That *Clostridium welchii* was found in every batch of blowflies examined need cause little alarm. If looked for with diligence, this organism is almost omnipresent in dirt and it is easy to exaggerate the risks of food-poisoning from this cause. But blowflies are nasty things and better dead.

Three years ago we gave some reasons for thinking that the importance of flies in the transmission of infectious disease in this country might have received too much notice.[5] Their guilt is repeated in almost every textbook with little regard for the weakness of the case for the prosecution. They irritate us when they sit on the back of our neck and they disgust us when they stroll on our food, but may not this be just such an irrational loathing as all men (with some eccentric exceptions) feel for serpents? Flies have noisome habits and dirty feet; we see them plain and we hate them: *igitur*, they are a common cause of infectious illness. But their guilt is still open to doubt and deserves re-examination by modern methods. Moreover, their rôle of scapegoat is liable to withdraw attention from some other more dangerous and more easily controlled source of infection. The medical officer of health for the city of Oxford has lately made a welcome plea for more elasticity in our thinking on preventive medicine and for a greater willingness to discard those procedures which have the sanction of tradition alone.[6] Nevertheless, we hesitate to suggest that anyone, even in England, should relax his efforts to destroy all the flies he can. We do not know that they can spread infection but we are not sure that they cannot. There are occasions and places where the matter might be tackled with more intelligence and ingenuity. It is not easy and it is sometimes hazardous to reduce these biological problems to rule of thumb, and there is no better illustration of this than the natural development of resistance to lethal agents by insects and bacteria. Local authorities, faced by questions of this kind, will rarely have among their staff anyone with the necessary academic training in biology and they would do well to make use of the available consultant services, such as the Pest Infestation Laboratory.

4. Pest Infestation Research Board Report for 1952. H.M. Stationery Office, 1953.
5. *Lancet*, 1950, ii, 864.
6. Warin, J. F. *J. R. sanit. Inst.* 1953, **73**, 309.

NOSE AND HAND IN RESPIRATORY INFECTION

We have heard much in the last twenty years of the transmission of hæmolytic streptococci through droplets and droplet-nuclei and through dust in the air of hospital wards; and bacteriologists have shown that oiling the bedclothes and floors of wards reduces by 75–90% airborne dust particles carrying bacteria. But there is little direct evidence that such measures effectively reduce the incidence of streptococcal disease, and no-one now seems very enthusiastic about trying to overcome the difficulties entailed in putting these measures into practice on a large scale. The emphasis now seems to be shifting in the direction indicated by Hamburger and his colleagues [1] when they showed the danger of nasal carriers contaminating their environment, the importance of the hands in transferring hæmolytic streptococci from the nose to the environment, and by contrast the poor bacterial yields from droplet-spray during forced expiratory exercises. An experimental study by Rubbo and Benjamin,[2] of Melbourne, with healthy carriers of hæmolytic streptococci, and with persons carrying a marker organism in their upper respiratory passages, supports these findings. Rubbo and Benjamin found that only 18% and 55% of the carriers expelled detectable hæmolytic streptococci during violent coughing at target plates held 12 inches and 6 inches respectively from the mouth; even then the average count was only one colony per cough per target plate. Unless a carrier had a good flow of saliva (2–3 ml. per min.) containing a high concentration of organisms ($>10^6$ per ml.) he was unlikely to be an effective expeller of droplets or droplet-nuclei. Few carriers were found to measure up to these requirements. Droplets and droplet-nuclei are therefore relatively unimportant in transmission of this infection, because of their extremely low content of hæmolytic streptococci. By means of a slit air sampler and an electrostatic air sampler, Rubbo and Benjamin also showed that groups of 30 schoolboys entering or leaving a schoolroom or vigorously singing did not contaminate the atmosphere with hæmolytic streptococci anything like as much as did gentle shaking of their handkerchiefs for one minute. Dust particles produced by shaking handkerchiefs polluted the air more effectively than violent expiratory activities; but it was contamination of hands and clothing from a heavily infected nose that was the principal cause of contamination of the environment and of transmission of the infection to other persons.

These experiments make clearer the relative importance of the various pathways of transmission of hæmolytic streptococci, and probably also of other respiratory pathogens. The formidable task remains of devising effective and practical means of breaking down the chain of infection from nose to hands or to handkerchiefs and clothing, and thence by hands or dust to the nose or mouth of the next victim. But at least we know where our main efforts should be concentrated, and can have increased confidence in advising the public to wash their hands.

RESPIRATORY DIVERTICULA

Diverticula of the respiratory tract are by no means rare. In the trachea three types are found. The first type consists of short cylindrical structures, always on the right side; they contain cartilage in their walls and are probably rudimentary bronchi.[3 4] Those of the second type are broader protrusions between the transverse muscle bands that unite the posterior ends of the tracheal cartilages. (The "aerial goitres" in women after childbirth

1. Hamburger, M. jun., Green, M. J., Hamburger, V. G. *J. infect. Dis.* 1945, **77**, 68, 96; *Ibid*, 1946, **79**, 33.
2. Rubbo, S. D., Benjamin, M. *J. Hyg., Camb.* 1953, **51**, 278.
3. Chiari, H. *Beitr. path. Anat.* 1889, **5**, 329.
4. Stibbe, E. P. *J. Anat., Lond.* 1929, **64**, 62.

described by Ætius, the 6th-century Byzantine writer, may have been examples of this type.) Rokitansky [5] believed that they were due to severe long-continued coughing; but large diverticula have also been observed in Egyptian minaret criers and in drill-sergeants.[6] The protrusions are usually in the upper part of the trachea, but they may be present throughout its whole length; the trachea itself is sometimes much dilated.[7 8] The third type consists of oval, sessile, or pedunculated cysts with small openings in the tracheal wall. Gruber [9] in 1869 described cysts up to 2½ cm. long and suggested that these were due to chronic bronchitis, which caused obstruction of the ducts of the mucous glands with consequent distension. MacKinnon[10] has now reported 10 cases, 8 of which were discovered during the course of 867 routine necropsies—a surprisingly high frequency for what has been regarded as a rare condition. The lesions were all in middle-aged and elderly subjects who had had a cough for many years. The cysts, up to 3 cm. long, were on the right side of the trachea, and all but one were at its upper end. They were lined by stratified columnar epithelium, and small tortuous communications with the lumen of the trachea could sometimes be traced. MacKinnon suggests that the cysts begin as dilated mucous-gland ducts and that increasing distension causes atrophy of the gland tissue, the duct finally becoming a simple epithelium-lined fibrous-walled cyst containing mucus. This type of tracheal diverticulum is superficially similar to some paratracheal bronchogenic cysts.[11] These also are usually on the right side, but they sometimes develop in much younger patients without evidence of bronchitis, and their walls commonly contain all the elements of a normal bronchus; they appear to be developmental anomalies. Tracheal diverticula have little clinical importance, but bronchogenic cysts may cause symptoms by pressure or infection, and 2 instances of carcinoma in the cyst wall have been reported.[12]

Cystic enlargement of mucous glands also occurs in bronchi, in association with chronic bronchitis. Bronchography will reveal small diverticula, commonly in the main bronchi or near the bifurcations of the larger bronchi.[13] Duprez and Mampuys [14] have studied such lesions by bronchography, bronchoscopy, and the examination of dry necropsy specimens. The openings of the ducts can sometimes be seen by bronchoscopy in patients with atrophic bronchial mucosa, and they are readily demonstrated in the dried specimens. Duprez and Mampuys suggest that the ducts have sometimes been wrongly interpreted during bronchoscopy as fistulæ caused by rupture of caseous tuberculous lymph-nodes. The cystic enlargements may also be confused with small developmental anomalies. Duprez [15] recorded a minute diverticulum of similar appearance in the main bronchus; but there were traces of cartilage, muscle, and elastic tissue, suggesting that it was a rudimentary accessory bronchus. Larger developmental abnormalities may cause symptoms; and 5 examples of intrapulmonary bronchogenic cysts treated by lobectomy are described by Baxter and Meakins.[16] In 4 cases the cysts did not appear to communicate with the bronchus, although 3 were infected. In 1 there were no bronchial elements other than ciliated columnar epithelium; but the size of the cyst, which was 3 cm. in diameter, and the absence of evidence of chronic bronchial infection, suggests that this, like the others, was a developmental abnormality.

Respiratory diverticula are of more than academic interest, since they may be related to chronic bronchitis. Duprez and Mampuys suggest that the glandular cysts may help to maintain chronic bronchial infection; but, even if this is so, it is difficult to see how the infected cysts could be specifically treated.

5. von Rokitansky, C. Handbuch der pathologischen Anatomie Vienna, 1846; vol. 3.
6. Ziegelman, E. F. *Arch. Otolaryng., Chicago*, 1935, **21**, 414.
7. Morloch, H., Scott, A. *Lancet*, 1933, ii, 236.
8. Nielson, K. *Acta Radiol., Stockh.* 1948, **29**, 331.
9. Gruber, W. *Virchows Arch.* 1869, **47**, 1.
10. MacKinnon, D. *J. Path. Bact.* 1953, **65**, 513.
11. Laipply, T. C. *Arch. Path.* 1945, **39**, 153.
12. Moersch, H. J., Clagett, O. T. *J. thorac. Surg.* 1947, **16**, 179.
13. Stutz, E. *Röntgenpraxis*, 1948, **17**, 91.
14. Duprez, A., Mampuys, R. *Thorax*, 1953, **8**, 141.
15. Duprez, A. *Acta chir. belg.* 1951, **50**, 65.
16. Baxter, S. G., Meakins, J. F. *Ann. intern. Med.* 1953, **38**, 967.

URINARY ANTIBODIES

UNLIKE hormones, antibodies are not produced centrally in a single organ with the blood acting as transport agent for their uniform distribution throughout the body; and attempts to inhibit antibody production by extirpating organs or tissues have been unsuccessful. The cells of the reticulo-endothelial system, particularly in the spleen, liver, and bone-marrow, have long been regarded as antibody producers as well as scavenging agents. Antibody production has been shown to take place in lymph-nodes near the site of introduction of antigen [1]; and lymphocytes [2] and developing plasma-cells [3] have been suspected as being responsible for antibody synthesis. Antibody production in the skin [4 5] and in fat and voluntary muscle [6] has been reported, but not in the liver or spleen. Discrepancies in the antibody content of the blood and of the milk, fæces, urine, nasal secretion, and vaginal discharges in infections have suggested that antibodies are produced locally in infected tissues.

Interesting observations bearing on this problem have been made by Naylor and Caldwell during a survey of salmonella carriers among Egyptian cooks and other kitchen staff employed by the British Army in the Suez Canal zone.[7] These food-handlers are immunised with T.A.B. vaccine and are examined periodically for the urinary carriage of enteric organisms. Antibodies to flagellar antigens of enteric species were found in the urine of many carriers. In some cases the circulating blood contained antibodies due to previous infection or to T.A.B. vaccination; and leakage of antibodies into the urine may have occurred by plasma exudation or by bleeding into the bladder in men infected with schistosomes. In other cases, however, the distribution of the antibodies was quite different in the urine from that in the blood. Antibodies to the specific flagellar antigens of the salmonellas infecting the urinary tract were plentiful in the urine, while other antibodies predominant in the blood were absent from the urine. Carriers showing this feature had chronically infected bladders; and Naylor and Caldwell suggest that antibodies are produced in areas of cellular infiltration within the bladder wall and find their way directly into the urine without first passing into the blood-stream.

Evidence is thus accumulating that antibodies may be produced by cells close to the site of infection and confer a local immunity apart from a generalised body immunity.

Dr. ELMER L. HENDERSON, first president of the World Medical Association and a former president of the American Medical Association, died on July 30, at the age of 68 at his home at Louisville, Kentucky.

Mr. JAMES WYATT, consulting obstetric physician to St. Thomas's Hospital, died on July 31 at the age of 70.

1. McMaster, P. D., Hudack, S. S. *J. exp. Med.* 1935, **61**, 783.
2. Harris, T. N., Grimm, E., Mertens, E., Ehrich, W. E. *Ibid*, 1945, **81**, 73.
3. Fagraeus, A. *J. Immunol.* 1948, **58**, 1.
4. Cannon, P. R., Sullivan, F. L. *Proc. Soc. exp. Biol., N.Y.* 1931, **29**, 517.
5. Ørskov, J., Andersen, E. K. *Z. ImmunForsch.* 1938, **92**, 487.
6. Oakley, C. L., Batty, I., Warrack, G. H. *J. Path. Bact.* 1951, **63**, 33.
7. Naylor, G. R. E., Caldwell, R. A. *J. Hyg., Camb.* 1953, **51**, 245.

Public Health

EPIDEMIC POLIOMYELITIS AND ITS PREVENTION

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THE problem of poliomyelitis in Great Britain changed abruptly in 1947, the first year in which a national epidemic occurred. Not only was there an epidemic of nearly 8000 cases in that year, but the incidence of poliomyelitis has been consistently greater ever since (fig. 1).

Before 1947 poliomyelitis, commonly known as "infantile paralysis," was an endemic disease in this country. It affected mainly children. The incidence was usually about 2 per 100,000 population per annum—the highest level being 4 per 100,000 in 1938. This was in sharp contrast to other parts of the world—e.g., the U.S.A. and Scandinavia—where epidemics were both severe and repeated and the incidence sometimes as high as 30 per 100,000.

The source and mode of transmission of the virus in this country was always something of a mystery, for although it was known that the virus was present in both the nasopharynx and the fæces of the patient and close contacts, there was little or no evidence of case-to-case transmission. More than one case in a household was practically unknown, and even when a school or camp had two or three cases, direct transmission between these could rarely be proved and a common infecting agent could not be excluded. Flies, water-supply, and infected foodstuffs seemed just as likely suspects as human carriers.

The generally accepted explanation was that the virus was in fact widespread throughout the community, and that the majority of people acquired effective and lasting immunity at a relatively early age and without any distinctive symptoms. The paralytic form of the disease appeared to represent less an essential part of a relatively rare immunising infection than a rare complication of a common infection. Since most individuals experienced their immunising infection in early childhood, paralysis also occurred almost exclusively in children—"infantile paralysis."

This view seemed reasonable and there was considerable evidence in its support. After the Lansing virus was adapted to mice, it became possible to study the serum content of antibody against strains of this type on a fairly wide scale, and epidemiological studies confirmed the ubiquity of strains of Lansing type. A study of virus in the fæces of children in Chicago suggested that nearly all had had at least one, and some had had several, subclinical infections before the age of six years (Casey et al. 1950), and similar results have been obtained by studying the antibody content of the sera of other population groups (Turner et al. 1945, 1950, Paul et al. 1951, 1952). It has in fact been suggested that immunisation to poliomyelitis proceeds at much the same rate as immunisation to measles, the only difference lying in the absence, in most cases, of easily diagnosable symptoms and signs at the time of the immunising infection.

A Changing Disease

One problem, however, always remained unanswered. Why, if immunity was so widespread, did certain populations, although known to develop this general early immunity, continue to suffer from repeated severe epidemics from time to time, and why in these epidemics was there a relatively high incidence among adults, who surely would be expected to have acquired their immunity while children and to have received repeated boost doses ever since?

Since 1947 this question has applied to this country too; for the same thing is happening here. Our presumed immune population appears to have lost its immunity, and we now have epidemics similar to those in the U.S.A., parts of Europe (notably Scandinavia and Germany), and certain island communities—e.g., Malta and Mauritius. These new *epidemics* of poliomyelitis differ from our former *endemic* poliomyelitis in three important respects:

(1) The age incidence has altered, and the name "infantile paralysis" has had to be abandoned; both the general public and the medical profession now speak of "polio" instead. In fact, one-third of the cases are over fifteen years of age, and adults provide the majority of the deaths (Sabin 1949, Benjamin and Gale 1949, Weinstein et al. 1952).

(2) The proportion of symptomless infections appears to be greatly reduced, and multiple cases in a family or school have become relatively common.

(3) The mode of transmission of the virus is no longer a matter of reasonable doubt. *Personal contact* appears to be the main method of transmission. Reports on an epidemic in Lincolnshire said:

"By the occurrence of multiple cases in households, spread of infection along bus routes and frequent history of personal contact with an infectious case, it was clear at an early stage that poliomyelitis in this epidemic was being transmitted through personal contact" (Clarke 1951).

"While it proved impossible to trace definitely the source of infection in any of the first cases occurring in these districts [areas being specially watched], in many there was strong suspicion that the first patients had been infected during visits to towns where poliomyelitis was prevalent. There was, however, little doubt that *abortive cases and healthy carriers* played an important part. In no instance was there any evidence of spread of the disease by food, water, or flies" (Ministry of Health 1951).

This complete change in the disease has been ably summarised by Bradley (1952) at the International Conference on Poliomyelitis:

"Approximately a third of the cases were under 5 years of age, a third between 5 and 15 and a third over 15. But the fatalities became progressively more frequent as age increased. Two-thirds of the deaths were in persons over 15 years of age.

"The pattern of poliomyelitis in the United Kingdom since 1946 suggests that some entirely new phenomena which

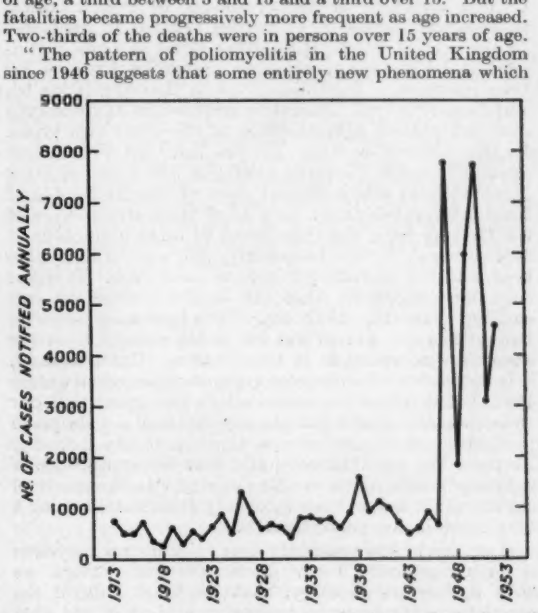

Fig. 1—Number of poliomyelitis cases notified annually in England and Wales (1913–52).

also affected many other of the European countries in about 1946 to 1947 were responsible for our first real epidemic in 1947, and 1949 and 1950 were a continuation of this phenomenon which appears to have been related to an exaltation of infectivity. For example, multiple cases in a household, rarely reported before 1947, have become commonplace in some outbreaks. Cross-infection of hospital personnel has been observed a little more frequently than we like and, most surprisingly, careful study of the spread of the disease through some communities has made us consider the probability that the infection moves through a relatively narrow stream of the population. The high infectivity has made it possible for us to trace a chain of contacts with relative ease in some situations. In one series of consecutive cases in a rural area 20 per cent of the cases were family contacts with paralytic cases, that is, as they occur in the same household. Thirty per cent were nonfamiliar contacts with paralytic cases, 20 per cent had indirect contact through an intermediary and in only 20 per cent was it impossible to conjecture or perhaps guess the source of infection. Numerous experiences like this have led us to review the possibility of obtaining some measure of control by the surveyance of contacts and their special instructions in personal hygiene."

Without the alteration in age incidence of the disease, one could accept the suggestion that we are merely dealing with an "exaltation of infectivity," but in the presence of such clear evidence that the adult population has little more immunity to epidemic poliomyelitis than its children, although endemic poliomyelitis has been in this country for many years, some other interpretation becomes necessary.

The most likely explanation seems to be that the appearance of epidemics of poliomyelitis in this country in 1947 was the result of the arrival or widespread dispersal of an infective agent which, though it produces the same pathological lesions as the virus of endemic poliomyelitis, is no more related to it immunologically than smallpox to alastrim. In fact epidemic poliomyelitis seems to bear approximately the same relation to endemic poliomyelitis as smallpox to chickenpox since it is a much more dangerous infection with a higher rate of diagnosable disease per immunising infection and consequently a greatly increased rate of death and disablement.

The phenomenon of more than one immunogenically distinct organism producing similar or even identical pathological lesions is, of course, familiar in medicine. In the case of poliomyelitis, three types of virus, distinguished on their immunogenic properties have so far been identified: Brunhilde (type I), Lansing (type II), and Leon (type III). Immunity acquired to any one type does not protect against either of the other two types. In this context a study by the National Foundation against Infantile Paralysis (1951) of 100 types of virus obtained from actual clinical cases of the disease (34 of them fatal) is relevant: only 12 of these strains were of the Lansing type, the type found to be so ubiquitous in field surveys; by far the majority (85) were of Brunhilde type, and the remaining 3 were of Leon type. It is not surprising, therefore, that the strains isolated in this country from the 1947 and 1950 epidemics were of Brunhilde type, and so was the strain isolated from the recent severe epidemic in Copenhagen. Unfortunately, it is not known what type or types were prevalent before 1947, but it seems not unreasonable to suggest that our endemic poliomyelitis was the expression of a widespread prevalence of strains of one type (probably Lansing) having a low paralytic rate, and that the appearance of epidemic poliomyelitis in this country was the result of the arrival of a new virus (probably Brunhilde) having a very much higher paralytic rate.

If we accept the possibility that epidemic poliomyelitis is immunogenically a new disease for this country, we have to face its corollary, that the main bulk of the population may have no immunity against it and that we may expect repeated epidemics for many years to come. The occurrence of one or even several epidemics does not appear to confer security against further epidemics; rather, it must be regarded as a forewarning of more to come. Thus Denmark had, last year, the worst epidemic ever recorded in Europe, with an attack-rate of 133 per 100,000 population for all classes (over 200 in Copenhagen and 338 on the island of Bornholm), although the epidemic disease had previously been more severe in Denmark than in this country. Similarly, the U.S.A., which has suffered half a century of repeated and severe epidemics, and whose population might be expected to have acquired considerable immunity against the virus, had last year its biggest recorded epidemic (fig. 2), which is expected to leave behind at least 20,000 cases "with more or less lasting traces" of the disease, to be added to their accumulated total of preceding years (World Health Organisation 1953). It appears in fact that the virus of epidemic poliomyelitis is not, like that of endemic poliomyelitis, ubiquitous, but passes along narrow streams of the population and only relatively small numbers of individuals are likely to have acquired immunity to it. Many of them have also been paralysed. The rest of the population is still susceptible.

It is possible that the price which we are paying in death and disablement for allowing our susceptible population to acquire immunity to epidemic poliomyelitis by natural exposure to the virus is a great deal higher than we realise or can afford to pay.

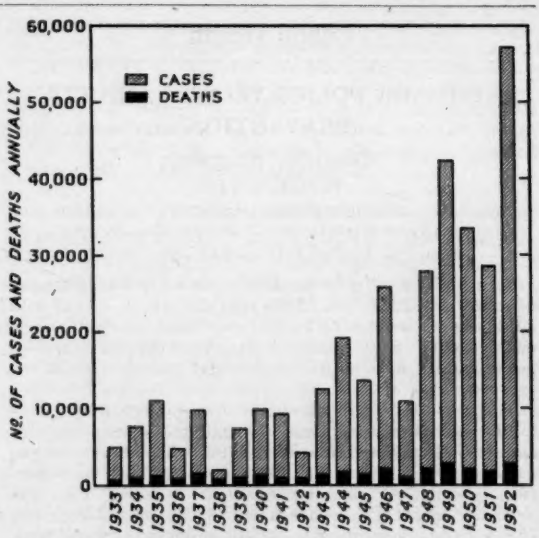

Fig. 2—Poliomyelitis cases and deaths notified in the U.S.A. (1933–52)

The increase in notifications in recent years seems to be real. In 1951 35% of cases were disabled and a similar proportion is expected for 1952.

The Statistics

Many people are not clear what the published notification figures for poliomyelitis really mean, particularly how many of the notified cases are non-paralytic. Considerable information can, however, be gained from official reports.

TOTAL POLIOMYELITIS CASES (1947–51)

Fig. 1 shows the annual incidence of the disease in England and Wales since 1913. If we add the annual figures for 1947–51 together, we find that there have been in all about 26,000 cases; of these, 2877 have died, and poliomyelitis now kills more people than any other common communicable disease except whooping-cough and influenza. It is striking that the public is far more afraid of poliomyelitis than it is of either of these other

diseases. There are two main reasons for this fear. Firstly, influenza and whooping-cough kill the very young and the very old who are known to be "poor risks" (80% of those who die of influenza are over fifty-five years of age); poliomyelitis kills and disables the school-child who has overcome the hazards of infancy, and the young adult, often with family responsibilities. Secondly, while the death-rate is a relatively fair indication of the damage done by these two other infectious diseases, it is a very poor indication in the case of poliomyelitis, for it fails to take into account the disablement-rate.

POLIOMYELITIS DISABLEMENT (1947–51)

The disablement figures are essential to any consideration of the dangers of poliomyelitis. An official inquiry (Bradley et al. 1952) into the fate of 7832 cases admitted to hospital with a diagnosis of poliomyelitis in 1949 showed that:

> Of every 100 patients admitted to hospital 6 died, 10 were severely paralysed, and 18 had a degree of paralysis which, properly treated, would not stop them from working. "With regard to the remaining 65 or 70 almost one-half of these would subsequently be found to be suffering from some other disease; the remainder would either be left with a trivial paralysis which would pass almost unnoticed or would suffer no permanent ill-effect whatever."

If we eliminate the 30% in which the diagnosis was later changed, since they do not figure in the annual totals, we find that the 6 dead plus the 10 with severe paralysis plus the 18 who will be able to work in spite of paralysis make up over 30 of the remaining 70, giving an estimated death and disablement rate of over 40% of corrected notifications of poliomyelitis—in other words, 10,000 dead and disabled by epidemic poliomyelitis in the 5 years 1947–51.

It is worth considering what a "degree of paralysis which, properly treated, will not stop them from working" is likely to mean to the patients in that category and to the National Health Service. "Proper treatment" may mean anything from a few months to a few years in hospital and possibly the continued wearing of apparatus and/or one or more stabilising operations. In the end, the patient may indeed be able to work, but he may have been forced to change his trade and seriously to restrict both his private life and the economic standards of his home. Disabled cases figure only in the statistics for the year in which they contract the disease; but they remain poliomyelitis cases for the rest of their days. Their cost to the nation in hospital treatment, physiotherapy, instruments, wheel and motor chairs, rehabilitation and retraining courses, National Insurance payments, and disablement allowances is certainly not small. In the U.S.A. it has been estimated that 30% of all orthopædic cases with disablement, under the age of 25, excluding amputations, are the result of poliomyelitis (Collins 1946)—a proportion fortunately not yet reached in this country.

POLIOMYELITIS IN THE FUTURE

The figures for epidemics of poliomyelitis to date have been bad enough but there may be even worse to come. In 1947 Berlin had an epidemic considerably more severe than our own, with an incidence of 70 per 100,000 population (England and Wales had 18 per 100,000 and London 22 per 100,000). In last year's epidemic in Denmark, not only was the incidence the highest on record for Europe, but there was a very high proportion of cases with respiratory and bulbar paralysis, among which at the beginning of the epidemic, when the health service was unprepared, the death-rate was 80–90%. At one time the fever hospital in Copenhagen had as many as 70 patients under special treatment for these two complications (Lassen 1953). An epidemic on the same scale in Great Britain would mean at least 40,000 cases in a year—more than we have had so far in our 5 epidemic years together. Fig. 1 would have to be five times as high for such a level to be recorded on it.

These figures are presented deliberately, not out of a sensational desire to alarm, but because effective action (which is possible) will not be taken unless the seriousness of the danger is accurately realised. Unfortunately up to now our minds have been confused by familiarity with endemic poliomyelitis, and the implications of what is virtually a new disease in our midst have not been truly understood. It is very probable that had this new virus caused, not "anterior poliomyelitis," but a different and unfamiliar febrile condition having a similar death and disablement rate, vigorous measures would have immediately been taken to check its passage along "narrow streams" of the population.

Prevention

There are two main methods of protecting a population against an infectious disease. We can make the individual resistant to the organism or we can protect him from exposure to it.

INDIVIDUAL RESISTANCE: IMMUNISATION

Active Immunisation

This will probably be the final answer to the problems of both endemic and epidemic poliomyelitis, and already the preparation of vaccines active against all types of poliomyelitis virus is progressing fast. Vaccines are, however, not yet ready for clinical use, and their possible future use should not be allowed to detract from the importance of immediate prophylactic measures; rather, the fact that this solution is at last in sight makes more urgent the adoption of any prophylactic measure, however temporary, that may prevent permanent disablement in the meantime. In the past, it has been a common criticism, based on experience of endemic poliomyelitis, that any form of control would merely keep the population artificially susceptible to the disease, and so increase the severity of an epidemic when it finally came. For the reasons given above, this argument is clearly no longer valid.

Passive Immunisation

The injection of gamma-globulin during an epidemic period has been shown to give significant, though temporary, protection in the investigations carried out in the U.S.A. (Hammon et al. 1952, 1953). Unfortunately, not only is the supply of gamma-globulin in this country quite inadequate for more than one or two pilot studies, but the anti-Brunhilde properties of our own gamma-globulin, prepared from the sera of our possibly non-immune population, are not yet known (*British Medical Journal* 1953, Hammon and Saller 1953). It is therefore necessary to try the other method of protecting the population from the virus.

PROTECTING THE INDIVIDUAL FROM EXPOSURE

This appears to be the method which is most likely to give immediate results. It is, of course, necessary first to determine how the virus is transmitted before its spread can be effectively prevented.

Theoretically, since the virus is present in both the nasopharynx and the fæces of patients and contacts, the disease may spread in any of a number of ways. *Practically*, the virus of epidemic poliomyelitis seems to be transmitted almost exclusively by personal contact. The repeated failure in *epidemic* poliomyelitis in this country to incriminate fæces, flies, and sewage is in striking contrast to the repeated examples of case-to-case or case-intermediate-case chains of infection which are described in the literature of each country as each in its turn experiences epidemic, as opposed to endemic, poliomyelitis.

In fact, so many examples of carriage by "human vectors" have been reported that one must wonder how many more examples are needed to establish the fact that epidemic poliomyelitis is transmitted by personal contact; how many more nurses and doctors must develop the disease before it is generally recognised that these patients must be nursed with full fever-nursing facilities and technique; and how many more people must have poliomyelitis as the result of exposure to contacts before the need for quarantine of contacts is accepted and acted upon. A list of some of the reports which illustrate, often with virological confirmation, the way in which the virus travels by personal contact is given at the end of the references in this article.

The part played by "symptomless and abortive cases" is the reason why the transmission of the disease by personal contact has so often been ignored. Usually one or more such cases intervene between two frank cases and so conceal their true connection, and it is only exceptionally, when the ratio of frank to symptomless cases is for some reason high, that the chain of infection by personal contact becomes apparent; usually the chain of infection remains hidden and is never published.

The importance of these symptomless and abortive cases was recognised very early in the history of epidemic disease. Flexner et al. demonstrated virus in the nasopharynx of contacts of the parents of a case in 1913, and he drew attention to the danger of the symptomless and abortive case. In 1917 his colleagues Taylor and Amoss wrote (with virological confirmation) that "the separate links may be defined as follows: case of acute poliomyelitis→contact carrier→second case. A still further analysis would determine that through the contact carrier other carriers occur, among which a certain number of additional cases arise."

There is no reason to believe that the contact carrier is less important now than he was then.

The value of the evidence accumulated since Flexner's day is that it shows how epidemics of poliomyelitis could be, if not entirely prevented, at least reduced by control of the movements of the "contact carrier." Whether he remains symptomless throughout or whether he is about to have the disease, the infected contact is a potential danger to all whom he meets directly and to many others indirectly. Control of his movements during his infectious period must prevent the subsequent chain of cases.

It has often been suggested that any form of quarantine restriction applied to poliomyelitis will only be "locking the stable door." The weakness of this argument can best be shown by studying a particular chain of infection. An epidemic in the Isle of Wight in 1950 provides such a chain which has been reported in sufficient detail for our purpose (Ministry of Health 1951).

This local epidemic, in July and August, 1950, had a high proportion of frank cases (only 2 of the 37 people concerned had no symptoms); and it is interesting that over half the cases were adults. Similar local outbreaks have been reported from other parts of this country and from abroad, and there is no reason to believe that the Isle of Wight epidemic was in any way exceptional, apart from the care with which the chain of infection was unravelled and reported (Gear and Measroch 1952).

Isle of Wight Epidemic, 1950

The epidemic was in the south-west corner of the island. There were 49 cases, of which 41 were paralytic and 2 died. All the cases developed during five weeks of July and August. The course of the epidemic is shown diagrammatically in fig. 3.

The original source of infection seems to have been the infant class of an elementary school in Freshwater, which is a tourist resort with a population of about 6000. The size of the infant class is not given, but the whole school numbered only 22 pupils.

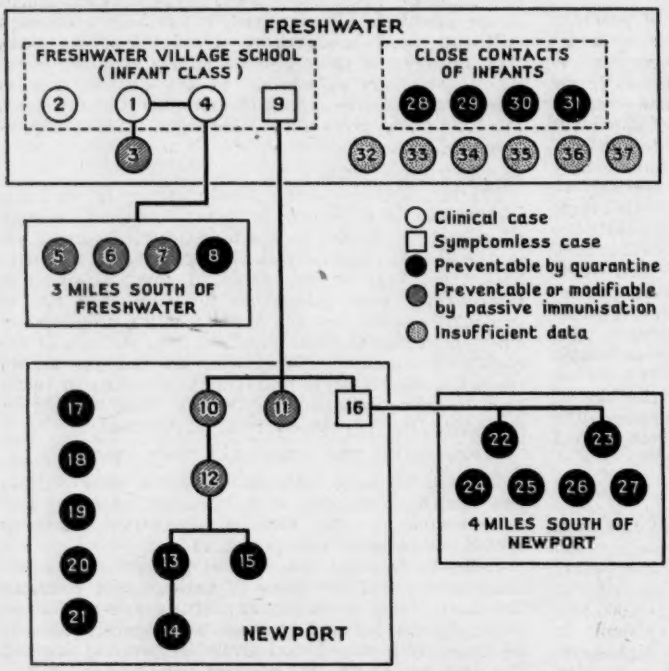

Fig. 3—Chain of infection in the Isle of Wight epidemic, 1950.

Only the high proportion of paralytic cases made the chain apparent. Replacement of 1 or 2 of the frank cases by symptomless cases would have concealed it even from a careful search. It is worth noting that case 16 represents a "nurse" not observing full fever-nursing precautions. Though symptomless herself, she transmitted the disease to her sister, to a social contact, and, directly or indirectly, to 4 other cases.

On July 12, 2 pupils of the infant class (cases 1 and 2 in fig. 3) developed poliomyelitis. The sister of case 1 (case 3) fell ill on July 17 and one of his playmates (4) at the school on July 20. 4 lived three miles from Freshwater and travelled daily to school by bus. His brother (5) developed poliomyelitis on July 28, his father (6) on July 26, and a boy (7), who came from Cowes to stay on holiday at the only house nearby and who was a constant playmate, on Aug. 1. A woman (8) who travelled daily to Freshwater on the same bus as 4 developed poliomyelitis on Aug. 5.

Another boy (9) from the infant class remained free, but he lived in a house where a couple (10 and 11) from Newport were staying. The wife attended a party at the infant class on July 6. Both returned to Newport, and had poliomyelitis on July 20 and 22 respectively. Their baby (12) was removed to its grandmother's home where it fell ill with poliomyelitis on July 31. An aunt (13) lived in the grandmother's house and continued to go to work until Aug. 6 when she was off work for two weeks with an "undiagnosed indisposition." Her fellow office-worker (14) had definite poliomyelitis (the date is not given). So did an R.A.F. sergeant (15), who visited the grandmother's house four days before the baby fell ill; his illness began on Aug. 6. There were 5 other cases (17–21) in Newport "in most of whom there was a history of having been on buses and in cafés at the same time as other patients."

The chain of infection is already impressive but it did not stop here. The mother of the baby was nursed at home before admission to hospital by a neighbour (16),

who was accustomed to visit regularly her mother living in an area south of Newport. On one of these visits she met her sister (22), herself visiting from some distance away, and talked with a girl (23) from a neighbouring house. The girl and the si ter duly developed poliomyelitis on Aug. 10 and 11 respectively.

In this small area south of Newport 4 other cases (24–27) occurred, and in each a possible contact was discovered. In Freshwater there were 10 other cases (28–37), of whom 4 had contact with the infant school (Aug. 10–12), and 3 had "large social contacts"—e.g., a doctor, a greengrocer, and a grocer's roundsman.

Studying the chain of infection from the point of view of quarantine control, it is striking how many cases might have been avoided. Thus, the couple who returned to Newport after known contact with the infant-school pupil may well have been responsible for the entire outbreak in Newport. Certainly their baby's transfer to the grandmother's house must be held responsible for the aunt's undiagnosed disease and the frank cases of the R.A.F. sergeant and the office-worker who became potential dispersers of virus in their social circles. Transfer of the baby and its parents to the fever hospital would have kept empty at least 2 beds that were later occupied by contacts.

Similarly, the neighbour who had nursed the baby's mother in the early stages of her illness would have been an obvious patient to quarantine; if she had not travelled to her mother it is very unlikely that either her sister or the young girl or any of the 4 other cases in the area south of Newport would have had the disease.

Again, the boy from Cowes might have been spared if he had ceased to play with the family of case 4 as soon as this case was diagnosed. (It is well to consider what might have happened in Cowes if, in the incubation period, this boy had happened to return home, as he was apparently free to do, and there mixed with the tourist crowd.)

Even in Freshwater itself, some cases might have been spared by quarantine restrictions. The 4 close contacts of the infant class who did not develop the disease until Aug. 10–12 were probably not infected initially.

Further, it is just possible that the individual responsible for the initial infection of the school, but never traced, knew himself to be a contact, but like thousands of others did not know the implications of that fact. Had he known it he would probably never have started the chain, and the whole epidemic in the Isle of Wight, involving 41 paralytic cases with 2 deaths, might never have happened.

In fig. 3 all cases which would have been prevented by immediate restrictions on the movements of those most likely to carry the virus are shown in black, and they make up 19 of the 35 cases on the chart. Those patients who would have been likely to gain some benefit from effective passive immunisation of contacts (serum or gamma-globulin) have also been picked out in fig. 3. Including these, the total number of preventable cases is 26. The figure also illustrates how the "chain" would not have been detected—and therefore not reported—if 1 or 2 of the cases—e.g., the couple who returned from Newport or the first cases in the infant class—had been symptomless instead of frank.

The type of control of contacts which would prevent such chains of infection is given below. The institution of quarantine control may seem both difficult and irksome, but it must be remembered that the more dangerous a disease the more the population is prepared to tolerate and even to insist upon regulations to control it. In fact the public is already applying its own form of quarantine to poliomyelitis because it gets no official lead. Families refuse to admit outside members whom they know to have had contact with poliomyelitis at home or at school or to come from a "poliomyelitis area"; they insist on withdrawing their children from boarding-schools where there are cases; and they refuse to spend their holidays in areas of high prevalence in spite of official reassurance. Here we may again quote the Chief Medical Officer's report for 1950:

> "The outbreak in the Isle of Wight gave some measure of the public alarm; it spoiled the holiday traffic and deprived thousands of their vacation in this lovely island. In spite of the special vigilance of the practitioners and the unusual readiness of the people to consult them during the five weeks of the outbreak, only 49 cases were notified, of which 41 were paralytic. These 49 cases were specially studied and most were found to be linked in a chain involving, with one or two exceptions, only permanent residents in the Island. It is unlikely that the incidence among holiday makers was above the average for the whole of the country. Clearly the public alarm, kindled by spectacular journalism, was unnecessary and unrealistic."

But perhaps, after all, the journalists and the thousands who stayed away from this "lovely" island may have shown considerable wisdom.

QUARANTINE

If quarantine is to be applied it must be effective. Supervision of contacts in order to put them into quarantine at the first signs of illness, as is done for smallpox, is useless in the case of poliomyelitis, both because of the symptomless carrier who seems to play a large part in transmission of the disease, and because a patient may be infectious for several days before he shows or feels any signs or symptoms.

Those Quarantined

All individuals who have been in contact with the patient up to four days before onset of the illness—i.e., the household, contacts outside the family, and contacts at the place of work or education—must be quarantined. Contacts themselves might in certain circumstances mix freely with one another—e.g., a boarding-school class—but they must not in the process come into contact with other groups.

Period of Quarantine

The period should be fifteen days for an individual and thirty days for a group (to safeguard against the symptomless intermediate) from the last time of contact with the case.

Rules of Quarantine

No contact with other persons, no admission of outsiders to the household, and no use of public transport, restaurants, or shops should be allowed. Transfer to other households or other areas should be forbidden. Hot meals and shopping services should be arranged, as they are for smallpox contacts.

A common-sense interpretation will be necessary. Those who should be most strictly included in the quarantine are the people who come into close contact with a large number of others—e.g., shop-workers, nurses, teachers, and pupils at school—and those likely to infect foodstuffs—e.g., milk-workers and retailers of foodstuffs that are not cooked before eating. In certain cases, where disposal of a contact is difficult, it will be worth considering the use of empty beds in the isolation hospital for this purpose, rather than keeping them vacant for cases which will otherwise develop. This need may also arise when a contact has to leave an area or household—e.g., when a school is disbanded. Many adults exposed while away from home would almost certainly prefer this solution to running the risk of returning home and carrying the virus to their family.

The wearing of masks should avoid transmission during brief personal contacts. In this matter the general practitioners, nurses, and ambulance men involved could set the example—a very necessary precaution not only for their own protection but also for the protection of the unusually large numbers of households which they enter.

Quarantine is bound to cause hardship. In the Isle of Wight the loss of tourist traffic was a financial disaster to hotels, boarding-houses, and restaurants, but this was so even without official quarantine, while adequate quarantine restrictions for the early cases might have actually prevented the epidemic altogether. This possible hardship must, however, be considered: it could probably be overcome by introducing some form of insurance against the declaration of a restricted poliomyelitis area. In America individuals insure themselves against poliomyelitis specifically, and the arrival of epidemic poliomyelitis in this country may make it worthwhile for insurance companies to offer cover against the disease, at any rate for business concerns. The National Health Service makes it less necessary for the individual to insure himself specifically against poliomyelitis in this country.

Whatever the difficulties involved in such a quarantine, they cannot outweigh the advantages of offering at least partial control of poliomyelitis epidemics. When a single case or contact may initiate a chain of 50 or even more cases of a disease with a 40% death and disablement rate and when this chain can be broken, partly at least, by quarantine, there can be no question of the value of attempting such prevention. The most valuable time for applying these restrictions is, of course, at the beginning of the epidemic period before the virus has spread radially—the earlier it is applied the fewer contacts it will be necessary to quarantine.

Perhaps one of the most valuable results of quarantine would be the education of the general public in the way in which the disease is transmitted, and particularly in the fact that symptomless contacts are as dangerous as true cases. Many people, whose contact might take too long for health visitors to trace, would on their own initiative gladly restrict their visits to their relatives and friends when they were aware of the danger they might carry to them and their children, and this general understanding would probably by itself prevent a large number of cases for which ignorance has been at least partly responsible in the past.

Discussion

"L'art d'ennuyer c'est de tout dire." It is not the purpose of this article to give a detailed account of the evidence of transmission of the disease by personal contact and of the presence of virus in the nasopharynx and fæces of cases and contacts, which are familiar to all those responsible for guarding the public health.

Its purpose is another one: to emphasise that, although in the days of endemic poliomyelitis, when exposure to the virus resulted in most cases only in the development of valuable immunity and not clinical disease, such evidence had no great epidemiological significance, the reverse is now the case. Exposure to the virus of epidemic poliomyelitis carries with it a very considerable risk of the disease, which in its turn carries a high combined death and disablement rate.

The hope that epidemics of poliomyelitis will disappear spontaneously is false. A recent W.H.O. report speaks of "the inexorable tendency of the notification figures to rise" in other countries, and we must expect that in this country, too, epidemics will not only continue but may increase, unless we do more than we are doing at present to control the free spread of the virus through our population.

It is often argued, though without justification, that we still lack sufficient *virological* proof of transmission of the disease by "personal contact." This argument represents a serious misconception of the relative values of laboratory and epidemiological studies. The important fact is that we have repeated evidence that when B, who has had "personal contact" with a patient (A) with poliomyelitis, meets C, D, and E, not only are the chances of C, D, and E developing poliomyelitis greatly increased in comparison with the rest of the population, but the contacts of C, D, and E are also endangered. Laboratory proof can add nothing to this. In fact, the laboratory may actually deceive us, for it can fail, for technical reasons, to demonstrate virus where in fact it abounds, and it can repeatedly demonstrate it where its presence is largely irrelevant. The first of these dangers is illustrated by the thirty years of failure to detect the viræmia stage of poliomyelitis, which has now been demonstrated. The second possibility has led to a preoccupation with the virus in sewage, where its presence is probably irrelevant to the spread of the disease in all but a very small proportion of cases. Since virus is excreted in the fæces it can hardly surprise us that it appears in sewage and even in flies.

It is salutary to recall that the modes of transmission of three of the main epidemic diseases—smallpox, typhoid fever, and cholera ("Take away the handle of the Broad Street pump")—were sufficiently understood for effective measures to be taken to control them before anyone demonstrated the causative organisms in test-tube or tissue culture. Would Jenner, Budd, or South really have failed to detect the significance of the intervention of the symptomless case in the chain of poliomyelitis contacts? Yet the symptomless patient, in spite of innumerable proofs of his existence and warnings of his importance by the earliest workers, has so far proved an apparently insurmountable barrier in the way of establishing control over the disease.

There have been recent discussions on the need for strict fever precautions in nursing cases of poliomyelitis. It has always been the teaching in this country that poliomyelitis cases are nursed with full fever technique to protect not only the attendant himself *but also all those with whom he comes in contact within and without the hospital walls;* and it is possible that the reason why this country, in spite of the appearance of epidemics since 1947, has so far not suffered as heavily as Denmark and certain other countries is to be found in our practice of admitting poliomyelitis cases to fever hospitals, where the virus enters a "blind alley." The recent proposal to remove the acute case of poliomyelitis from the fever hospital to the general hospital, where facilities for isolation are rarely adequate, must be regarded as an unfortunate one. If put into practice, it must increase, perhaps a hundredfold, our chances of a major epidemic on the Danish scale. If a single carrier can initiate a chain involving 40 or more cases, the nursing staff of a ward might be responsible for starting a number of such chains of infection while the hospital authorities remained blissfully unaware of their own significant contribution to their "unexplained" local outbreak, and to outbreaks in other parts of the country.

Discussion of the exact mode of transmission of the virus by "personal contact" has been deliberately avoided, for at present it can be only academic. Probably any and every route is used by the virus as opportunity offers, and plenty of opportunity offers when the virus is present in both nasopharynx and fæces. The virus can presumably be transmitted in the same way as streptococci or measles virus on the one hand and typhoid bacilli on the other. It is surely unrealistic to expect it to confine its passage to any one route. There is already more than enough epidemiological evidence to enable this and other countries to control epidemic poliomyelitis in the twentieth century as effectively as they controlled other epidemic diseases in the nineteenth.

So far, the challenge of poliomyelitis has not been met. It is to be hoped that not only this country but also the World Health Organisation will prove worthy of the epidemiologists of the nineteenth century and that they will institute effective measures to control a disease which presents, in the words of the recent W.H.O. report, "a threat of world-wide significance."

Summary

There is reason to believe that the epidemics of poliomyelitis which have attacked this country since 1947 are caused by a type of poliomyelitis virus ummunogenically distinct from that responsible for endemic poliomyelitis for many years and that only a small fraction of the population of Great Britain has as yet acquired immunity to it.

The new virus is dangerous, not only because of the population's lack of immunity, but also because of the high incidence of frank disease in those whom it infects—a far higher incidence than is associated with infection with the virus of endemic poliomyelitis.

This high incidence of frank disease has made it possible to confirm that the main route of transmission of poliomyelitis virus through the population is, as was suspected long ago, by "personal contact." Transmission of the virus by this route is often obscured by the intervention between frank cases of numerous "symptomless" cases. The presence of virus in the nasopharynx and in the fæces of cases and contacts makes "personal contact" a very likely mode of transmission.

In an epidemic in the Isle of Wight in 1950 there was a high proportion of frank cases, so that the chain of infection could be readily traced. This epidemic illustrated:

(1) The important part played by personal contact in transmitting the disease.

(2) How the chain of infection would have been obscured had only 1 or 2 frank cases been symptomless.

(3) How two weeks' quarantine for contacts would have prevented at least 19 of the 35 cases.

Quarantine for contacts during the period of infectivity—i.e., the two weeks following contact—would significantly hamper the radial spread of the virus from a case and consequently reduce the national notification figures for poliomyelitis. The earlier in an epidemic that such quarantine restrictions were imposed, the fewer would be the individuals to be restricted.

The danger of this disease, with its 40% combined death and disablement rate, demands that such restrictions be enforced now during the interim years before active and passive immunisation provide an easier protection.

All cases of poliomyelitis must be nursed with full fever-nursing technique to protect both the attendants themselves and all those with whom they come in contact and to whom they may otherwise transmit the disease.

The public's anxiety about the disease is so great that it would welcome and support the enforcement of quarantine restrictions.

It is a great pleasure to express my gratitude to Prof. J. Trueta for his constant advice and encouragement.

REFERENCES

Benjamin, B., Gale, A. (1949) *Mon. Bull. Minist. Hlth Lab. Serv.* **8**, 208.
Bradley, W. H. (1952) *In* Papers and Discussions of 2nd International Conference on Poliomyelitis. Philadelphia and London; p. 143.
— Richmond, A. E., Thomson, D. (1952) *Ibid.* Philadelphia and London; p. 408.
British Medical Journal (1953) i, 874.
Casey, A. E., Fishbein, W. I., Schabel, F. M. jun., Smith, H. T. (1950) *Amer. J. publ. Hlth*, **40**, 1241.
Clarke, J. H. C. (1951) *Med. Offr*, **86**, 171.
Collins, S. D. (1946) *Publ. Hlth Rep., Wash.* **61**, 327.
Flexner, S., Clark, P. F., Fraser, F. R. (1913) *J. Amer. med. Ass.* **60**, 201.
Hammon, W. M., Coriell, L. L., Stokes, J. jun. (1952) *Ibid*, **150**, 739, 750.
— — Wehrle, P. F., Stokes, J. jun. (1952) *Ibid*, p. 757.
— — — — (1953) *Ibid*, **151**, 1272.
— Saller, G. (1953) *Amer. J. Hyg.* **57**, 185.
Lassen, H. C. A. (1953) *Nord. Med.* **49**, 1.
Ministry of Health (1951) Annual Report of Chief Medical Officer for 1950. H.M. Stationery Office.
National Foundation against Infantile Paralysis (1951) *Amer. J. Hyg.* **54**, 191.
Paul, J. R., Riorden, J. T., Melrick, J. L. (1951) *Ibid*, p. 275.
— Melrick, J. L., Barnett, V. H. (1952) *Ibid*, **55**, 402.

References continued at foot of next column

Poliomyelitis

Poliomyelitis notifications (uncorrected) in the week ended July 25 (the 29th week of the year) were (previous week in parentheses): paralytic 151 (147); non-paralytic 115 (76); total 266 (223).

The following table compares this year with the preceding six years:

Year	*Total cases up to and including 29th week*	*Cases in 29th week*
1947	806	193
1948	791	45
1949	847	99
1950	1920	261
1951	1161	134
1952	1178	164
1953	1689	266

Total notifications remain at a slightly higher level than in the corresponding week in any previous year; but the increase during the week ending July 25 was largely due to non-paralytic cases. So far in no part of the country is there a large focus of infection. A further seasonal rise is to be expected throughout August.

Estimate of Future Births

The Registrar-General's final estimate for live births in England and Wales during the September quarter is 170,000, and his provisional estimate for the December quarter is 155,000, giving an estimated total of 325,000 babies in the six months. There were 167,938 live births registered in the September quarter of 1952, and 158,029 in the December quarter—a total of 325,967.

Infectious Diseases in England and Wales

Disease	Week ended July			
	4	11	18	25*
Diphtheria	14	17	18	17
Dysentery	476	525	380	309
Encephalitis:				
Infective	6	5	7	9
Post-infectious	2	..	2	..
Food-poisoning	475	524	647	516
Measles, excluding rubella	6622	5504	4795	4394
Meningococcal infection	47	38	24	20
Ophthalmia neonatorum	37	45	31	45
Paratyphoid fever	3	3	5	11
Pneumonia, primary or influenzal	329	315	286	239
Poliomyelitis:				
Paralytic	85	118	147	151
Non-paralytic	41	65	76	115
Puerperal pyrexia	261	253	192	259
Scarlet fever	1066	1072	1018	1037
Smallpox	..	..	..	..
Typhoid fever	1	6	4	2
Whooping-cough	4690	4407	4218	4357

* Not including late returns.

DR. AGERHOLM: REFERENCES—*continued.*

Sabin, A. B. (1949) *In* Papers and Discussions of 1st International Conference on Poliomyelitis. Philadelphia and London; p. 3.
Taylor, E., Amoss, H. L. (1917) *J. exp. Med.* **26**, 745.
Turner, T. B., Young, L. E., Maxwell, E. S. (1945) *Amer. J. Hyg.* **42**, 119.
— — — (1950) *Ibid*, **52**, 323.
Weinstein, L., Shelokor, A., Seltser, R., Winchell, G. D. (1952) *New Engl. J. Med.* **246**, 296.
World Health Organisation (1953) *Epidem. vital Statist. Rep.* **6**, 87.

Evidence of Spread by Personal Contact

Adamson, J. D. (1949) *Canad. med. Ass. J.* **61**, 339.
Bradley, W. H., Gale, A. (1950) *Mon. Bull. Minist. Hlth Lab. Serv.* **9**, 242.
Brown, G. C., Ainslie, J. P. (1952) *Amer. J. Hyg.* **55**, 49.
Casey, A. E. (1942) *J. Amer. med. Ass.* **120**, 805.
— Fishbein, W. I., Bundeson, H. N. (1945) *Ibid*, **129**, 114.
Francis, T., Krill, C E., Toomey, J. A., Mack, W. N. (1942) *Ibid*, **119**, 1392.
Gear, J. H. S., Measroch, V. (1952) *In* Papers and Discussions of 2nd International Conference on Poliomyelitis. Philadelphia and London; p. 439.
McClure, G. Y., Langmur, A. D. (1942) *Amer. J. Hyg.* **35**, 285.
Ministry of Health (1927) Report of Chief Medical Officer of Health for 1926. H.M. Stationery Office; p. 83.
Pearson, H. E., Brown, G. C., Rendtorff, R. C., Ridenour, G. M., Francis, T. B. jun. (1945) *Amer. J. Hyg.* **41**, 188.
— Rendtorff, R. C. (1945) *Ibid*, pp. 164, 179.
Silverthorne, N. (1949) *Canad. med. Ass. J.* **61**, 241.
— (1951) *Ibid*, **64**, 315.
Smallpeice, V., Ounsted, C. (1952) *J. Neurosurg.* **15**, 13.
Sweetnam, W. P. (1948) *Brit. med. J.* i, 1172.
Tyrrell, D. A. J. (1951) *Lancet*, ii, 1129.
Vermont State Department of Public Health (1924) Infantile Paralysis in Vermont.
Wickman, I. (1913) *N.F.J. nerv. ment. Dis.* Monograph no. 16.

Special Articles

TREATMENT OF POLIOMYELITIS

REPORT FROM ROYAL COLLEGE OF PHYSICIANS *

MANY patients with poliomyelitis in this country are admitted to infectious diseases or general hospitals which are unsuitably staffed and equipped to meet the critical complications which may develop so quickly in this disease.

Many aspects of the treatment of poliomyelitis in this country cause anxiety; with this in mind a short account of some of the problems is presented as a contribution to improvements in the provision for and treatment of these cases.

The poliomyelitis patient as a source of infection

The viruses which cause poliomyelitis are probably spread by close personal contact. They can usually be isolated from the stools of infected persons over a period of weeks, and from the nasopharynx over a period of days.

These facts suggest a need for strict isolation of such patients, but there is little doubt that in an epidemic of poliomyelitis carriers and abortive cases play a most important part in the spread of infection.

In the home

Virus can be isolated from three out of four family contacts of paralytic cases of poliomyelitis; though minor illness often occurs, multiple paralytic cases in families are rare.

In hospital

The possibility of infection being passed to other patients and to medical and nursing staff exists, but adequate safeguards properly carried out reduce this risk to a minimum.

Facilities for isolation are, of course, more readily provided in hospitals for infectious diseases than in general hospitals, whereas the facilities for treatment recommended in this report are naturally more often available in general hospitals.

As a general rule, cases of poliomyelitis should be admitted direct to hospitals that have been specially equipped for the treatment of the acute stage along the lines suggested in the report.

Under certain circumstances it may be necessary or even preferable to treat a case in the pædiatric or medical department of a general hospital provided that efficient barrier precautions are adopted. When severe epidemics occur it may become necessary to open up additional units in general hospitals.

Disposal of acute cases of poliomyelitis

Each Regional Board should make provision in advance for the adequate care of sporadic cases, and should prepare a plan for dealing with a possible epidemic.

The Committee are of the opinion that patients with acute poliomyelitis should, except in an emergency, only be admitted to hospitals, whether infectious diseases hospitals or others, in which the requirements set out in this memorandum can be fulfilled.

Medical and nursing care in hospital

Patients in the acute stage of poliomyelitis may suddenly develop complications which will make exacting demands on the nurses and doctors. Shortage of experienced staff, lack of good hospital facilities, or difficulty in getting immediate assistance from certain specialists may quickly lead to disaster.

Medical staff

The general medical care of poliomyelitis in the acute stage requires:

(*a*) Immediate supervision by registrars or senior registrars who have had at least a short course in the care of acute poliomyelitis.

(*b*) House-officers who can be trained by the consultants or experienced registrars, so that one competent doctor can be summoned to a case at very short notice.

(*c*) Anæsthetists or E.N.T. specialists who are available day or night to assist in maintaining a free airway—often a vital requirement.

(*d*) A team of consultants comprising neurologists, general and infectious diseases physicians, pædiatricians, orthopædic surgeons, and thoracic surgeons who have a knowledge of acute poliomyelitis.

Care must be taken, however, to avoid the danger of too many specialists confusing management of the case.

The number of medical staff required during epidemics varies from day to day according to circumstances, but in a sharp local outbreak all the medical, pædiatric, orthopædic, and E.N.T. registrars in the area could, with advantage, be available to help, and should therefore have had some special instruction in the care of acute poliomyelitis.

Nurses

The complex methods of treatment which may be required make it necessary to have nurses with special experience, but in epidemics the number of experienced nurses will often be inadequate. In addition to the nurses who have already been trained in the care of patients with poliomyelitis in infectious diseases hospitals a panel of nurses who volunteer to treat cases in the acute stage should be prepared in all regions. They should be given practical instruction as soon as possible and should immediately be released from other work if their services are required in an epidemic. In compiling the list of volunteers preference should be given to nurses who have had experience in the general medical, pædiatric, or orthopædic wards of a general hospital.

Special requirements in the treatment of poliomyelitis in the acute stage

Hospitals which admit cases of poliomyelitis must have facilities for:

(1) Correct diagnosis.

(2) Making and recording observations of the extent and spread of paralysis without fatiguing the patient.

(3) The provision of correct sedation.

(4) The maintenance of a clear airway. This is of paramount importance. Paresis of the muscles of the pharynx and larynx must be recognised early. When it is present properly planned postural drainage, frequent changes of body posture, skilled use of suction apparatus, and sometimes bronchoscopy or tracheotomy will be required. The administration of food by an œsophageal tube or of fluid by intravenous or rectal drips will often be necessary.

(5) Recognition and measurement of the degree of paresis of the muscles of respiration and determination of the best time to provide artificial respiration.

(6) The provision of assisted respiration in such a way as to avoid causing distress (psychological or physical) to the patient. Respirator care is not without danger if provided by those who have not had special instruction. Catheterisation in a respirator case is often necessary.

(7) The immediate recognition and prompt treatment of pulmonary atelectasis is of special importance. Mobile X-ray equipment is required so that respirator cases can be radiographed.

If splints, which are occasionally required, interfere with the changes of posture necessary to prevent lung complications, they should be discarded until this risk is over. Passive movements should, however, be continued.

* By the Committee on Poliomyelitis, whose members are: Sir RUSSELL BRAIN (president); Sir CHARLES SYMONDS (chairman); Dr. DOUGLAS MCALPINE; Sir HAROLD BOLDERO (registrar); Sir JOHN CHARLES; Prof. W. G. BARNARD (treasurer); Dr. R. E. SMITH; Dr. W. RITCHIE RUSSELL (secretary); Dr. ALASTAIR HUNTER (assistant registrar); Dr. W. H. BRADLEY; Dr. F. S. COOKSEY; Dr. W. C. COCKBURN; Prof. WILSON SMITH, F.R.S.; Dr. R. B. BOURDILLON; Mr. H. J. SEDDON.

The foregoing makes it clear that a hospital suitable for the admission of cases of poliomyelitis in the acute stage must be well provided with experienced medical, nursing, and physiotherapy staff: it must have special equipment and immediate access to certain specialists.

As a preliminary step which can be taken without delay in all regions, those who now treat acute poliomyelitis should establish close liaison with the ear, nose and throat, anæsthetic, and thoracic surgery departments. The staff of these departments can assist with plans for the application of methods for keeping the air-passages free. Collaboration of this kind might in time result in a most helpful transfer of nurses from special departments to assist with the care of complicated cases.

Equipment

The equipment provided must be the best available and must include respirators, beds for postural drainage, suckers, œsophageal catheters, oximeter, spirometers, apparatus for providing oxygen and for positive pressure mask breathing.

The recovering stage of the disease

After the first three weeks of the disease the patient may be moved to a convalescent ward and a decision must be taken as to whether further hospital treatment is necessary. It is not the intention of the present memorandum to deal with the many problems which arise during this stage of the disease.

Conclusions

There is need for planning in the treatment of sporadic and epidemic cases of poliomyelitis. There is scope for variation of the details of the plans in different regions. Discussions between those responsible for drawing up plans in different parts of the country would lead to further improvements in methods.

CENTRAL HEALTH SERVICES COUNCIL

IN his introductory remarks to the report[1] of the Central Health Services Council for 1952, the Minister of Health, Mr. Iain Macleod, gave first place among the council's various undertakings to the study of medical research in relation to the National Health Service. The report[2] of this inquiry, produced jointly by the council's Standing Medical Advisory Committee and the Medical Research Council, in association with the Advisory Committee on Medical Research in Scotland, has already been published, and the Minister is at present considering with the other Ministers concerned the important issues that it raises.

The results of two other inquiries mentioned in the report have also been published earlier—the one dealing with the reception and welfare of hospital inpatients[3] and the other with visits to children in hospitals.[4]

THE MINISTER AND THE REGIONAL BOARDS

Among the many questions on which he had been advised by the council, Mr. Macleod mentioned "one of general and continuous interest, the relation between the Minister and the hospital authorities." His predecessor had given an assurance that he had no present intention of making any drastic changes in the basic structure of the hospital service; and, while Mr. Macleod could not anticipate the ultimate recommendations of the recently appointed committee on the cost of the N.H.S. (the Guillebaud Committee), he was glad to repeat the assurance for himself. He entirely agreed with the council's view that regional hospital boards should be fully consulted on the application of policy in the hospital service. While ultimate direction from the centre was unavoidable, he was satisfied that it should be kept to a minimum and that those responsible for the running of the service should have as much say as possible in its development. On this subject, the council has this to say:

"There appeared to have been a fairly steady trend, since the beginning of the National Health Service, towards greater central control. This was no doubt due to the desperate need for economy in the service, the shortage of resources for capital development, demands on manpower for other national purposes and, more generally, the pressure exerted on the Minister, as responsible to Parliament for the service, on all sorts of detailed matters as well as on major issues of policy. We were glad to note that the Minister was restoring to the Regional Boards important powers relating to the estimates and expenditure of Hospital Management Committees and we were informed that he had no intention at the present time of making any drastic changes in the basic structure of the hospital service.

"With this decision we were wholly in sympathy. To make any radical change would, in present circumstances, be dangerous and in our view wrong and we concluded, therefore, that all that was needed was a greater emphasis on the partnership which should exist between the Minister and the hospital authorities who have actually to run the service, a strengthening of that aspect of the agency relationship. On matters of general policy with regard to the hospital service, as with other sections of the National Health Service, we hope that the Minister will continue to come for advice to ourselves and to the Standing Advisory Committees. We cannot otherwise properly discharge our functions under the Act and there would be danger of confusion if the Minister were to seek too many independent sources of advice on separate parts of the service. But we often cannot advise on the implementation of policy at the administrative and executive levels and here we thought that the Minister might try to establish a rather closer working relationship with his agents, the Regional Hospital Boards."

CANCER EDUCATION

The council's Standing Cancer and Radiotherapy Advisory Committee have re-examined the question of cancer publicity, but they decided that it would be unwise to change the advice that they had given previously—namely, that it was undesirable at the present time for any cancer publicity to be carried out by a central government organisation direct to the general public. The committee suggested that the Minister should encourage local authorities and voluntary bodies to undertake exploratory schemes on cancer education in order to expand our knowledge of what can be achieved in this way. The education of doctors themselves in the early diagnosis of cancer was a very important part of the plan and one which was still deficient.

TUBERCULOSIS

Waiting-lists for tuberculous patients have been going steadily down: in 1951 they fell by 25%, from 9578 to 7096, and in 1952 by 13% to 6126. Since the start of the N.H.S. over 7000 additional beds have been provided for the treatment of tuberculosis. The report notes that, though conditions in a few hospital regions are still bad, in some regions there is now no waiting-list at all for early cases and in others the wait is only two to six weeks. Nevertheless, the council has advised the Minister to bring to the notice of regional hospital boards those measures which have been effective in reducing waiting-lists elsewhere, so that the same priority may be given to the admission of treatable cases of pulmonary tuberculosis as is now given to treatable cases of cancer.

DENTAL SERVICES

The council describes the dental services in hospitals as "generally most inadequate, for patients and staff alike." The Standing Dental Advisory Committee recognised that, with so much leeway to be made up, a full service for the hospital population could not be provided for a long time. For example, routine examination of all patients on admission, with treatment where necessary, and twice-yearly re-examination and treat-

1. Report of Central Health Services Council for the Year Ended Dec. 31, 1952. H.M. Stationery Office. 1953. Pp. 30. 1*s.* 3*d.*
2. See *Lancet*, July 18, 1953, p. 123.
3. *Ibid*, 1953, i, 227.
4. *Ibid*, pp. 531, 539.

ment of long-stay patients and staff, would occupy more than 1000 full-time dental practitioners. Accordingly the committee made a number of short-term recommendations which could be put into effect in the near future.

These included: routine dental examination and treatment of all long-stay patients on admission and at yearly intervals; provision of dental treatment for short-stay patients, but only where this was necessary as a part of medical care or for the relief of pain or some other emergency; special arrangements for outpatient dental treatment of patients with open tuberculosis; limitation of other outpatient treatment to specialist diagnosis and treatment; and provision, if possible, of facilities for the treatment of nursing and medical staff. These interim plans would call for about 400 dentists, in addition to specialists, for the general treatment of patients.

As a means of improving the administrative organisation of the dental services, the committee recommended the setting up of regional dental advisory committees, and the appointment in every region of an experienced dental officer or adviser.

TREATMENT OF DIABETES

The Standing Medical Advisory Committee thought that a case had been made out for the provision of special clinics for the treatment of diabetics and for special arrangements to be made for tuberculous, pregnant, and aged diabetics. Any general physician wishing to take charge of a diabetic clinic should be given an opportunity to obtain further experience at a special centre. A memorandum giving effect to the committee's recommendations went out to hospital authorities on July 7.

MENTAL HEALTH

Studying the question of the institutional treatment and training of high-grade mental defectives, particularly moral defectives, the Standing Mental Health Advisory Committee thought that more hostels for high-grade defectives were needed. These hostels should be established near suitable industrial centres or agricultural areas where there is satisfactory employment for unskilled workers. Special units could be set up in large urban areas for the accommodation of high-grade defectives who are socially maladjusted.

NATIONAL ASSISTANCE BOARD

THE board's report [1] for 1952 says that the expenditure on national assistance during the year was £89,755,000. The number of weekly assistance allowances rose by 205,452, and at the end of the year the total was 1,667,078. Assistance paid to the old and sick accounted for over 80% of allowances: of these, more than 1,000,000 were paid to people over pensionable age, of whom 200,000 were over the age of 80. The total amount of assistance granted in 1952 to meet charges raised under the National Health Service was just over £600,000. Of this sum, £209,000 represented the refund of shilling charges for prescriptions. The scale rates of assistance, which indicate the normal level of requirements other than for rent, were raised with effect from June 16, 1952, to meet the rise in the cost of food due to the reductions in food subsidies. These increases made it necessary to alter over 1,500,000 allowances, and the task was further complicated when many of the allowances had again to be adjusted to meet the increases in pensions, family allowances, and insurance benefits which also came into operation last year. But the board felt that any simplicity that could have been obtained by deferring the new rates would have been bought at the cost of too much hardship to the people concerned.

1. National Assistance Board. Report for 1952. Cmd. 8900. Obtainable from H.M. Stationery Office. 2s.

In England Now

A Running Commentary by Peripatetic Correspondents

TWO HUNDRED years ago we used to burn our witches on the village green. Nowadays we have the same local geriatric problems. The way we deal with them has changed, but the end-results are much the same.

The scene is all too familiar. The old man or woman who lives alone becomes increasingly unable to cope with the daily round. The men usually pack up for the shelter of their relatives or the welfare hostel, but the old women cling tenaciously to their independence. The downhill path of solitude is a way of no return. Unwashed and ill-fed at the best, verminous and disabled at the worst, the old body drags on, begrimed, misshapen, muttering hostile curses, abroad at night in senile confusion, and living in a veritable witch's den of cats and filthy furniture. The village does not like it. I am invited to invoke the benevolence of our laws for compulsory removal, whereby sane and unconvicted adults can be deprived of liberty on the grounds that it is in their own interests or those of other people.

My experience is that the Act is a virtual death-warrant in spite of all the good intentions. And I have become rather cynical about some of the good intentions. The landlord wants his tenant out, youngsters want the house, the petty feuds of neighbours, the interference of the village busybodies, the obsession for a tidy community, misguided charity, call it what you will, and the walls of an Englishman's castle are breached. Take these old folks from home against their will, wash them, deprive them of their few tattered and cherished possessions, and the will to live is quenched. Does tidiness count for so much at eventide?

When the Act was passed I thought it a fine thing; now I am not so sure. I had an old beggarman who sublet his house to a young couple after the war, keeping just one room for himself. He was a dirty old man who spent his charity on drink and came rolling home to be sick, and worse, on the stairs. The subtenants did not like it and said so. The old man was removed compulsorily to the welfare hostel—the old workhouse round the corner. He died, but you do not write on a death certificate that he died of a broken heart. If I had my chance again it would be the subtenants who would move.

In another village I had to put on wellingtons to enter the home of an old woman who littered every room of a modern house with filth and garbage until she set herself on fire one night. She was ailing but independent; our interview went smoothly until the question of removal to a hostel was mooted. Then she was rejuvenated with the fire of wrath. I was barricaded out of her house, and discretion counselled that it would be better to keep out of range of the domestic equivalent of the boiling oil which medieval defenders poured down on the heads of besiegers of their castle. I was with her in spirit. Surely it was better to risk the strictures of the coroner than be a party to the deliberate hastening of her end.

Dozens of these cases now suggest that compulsory removal should be reserved only for the bedfast case, where proper treatment and nursing care cannot be given in the home. "Is it in the interests of the patient?" is a question which needs a lot of heart-searching on a busy day. To use the law to remove these old folk for the sake of others is to take another path of no return—the path which led to Ravensbruck and Dachau. Perhaps the stake on our village green was more merciful,

* * *

The essence of light verse is that it should contain neither lines that are forced nor rhymes that are false; it should seem to flow effortlessly. Only those who have attempted to write it know how difficult it is to produce that effect. "That chap couldn't even write poetry, let alone light verse" said the late "Dum-Dum" of *Punch* who could speak with authority. Re-reading *Don Juan* which, though quizzical, is often very good and sometimes great poetry—and what a capital, if unseemly, story it is—one realises that it would never pass muster as light verse and wonders why Byron chose so difficult a metre. He certainly bit off more than he

could chew. No light versifier of experience would have attempted such a feat, though he might have had a shot at doing it in rhymed couplets: but a real poet should have stuck to blank verse.

* * *

"But what about the plumbing?" we asked the returned traveller impatiently; "tell us about the plumbing." Our friend obligingly rehearsed to us his encounters with dish-washing machines and garbage-disposal units; his eyes bulged dutifully, but it was plain his thoughts were elsewhere. He came round to it in the end. It was in Cleveland, he said, that his host took him for half an hour to visit a bowling alley. After watching the automatic re-setting machine (our friend is in some respects a simple man) in a happy daze for some ten minutes, his eye fell on a notice in the corner saying "Sanitary Rest Rooms," and, feeling in need of a sanitary rest, he took himself off. He had, he said, expected the Usual Offices, and it is important that this attitude be borne in mind in view of what followed. The room, he said, was full of a vicious blue light emanating from behind the throne. He took hold of the seat and pulled it forward; there was a click and the light disappeared, only to return with a splutter when he released his hold and the power-driven seat rose slowly and majestically on its well-oiled bearings to its former vertical position. Our friend is not an electronics man, but he spent an exciting few minutes exploring the machine for evidences of negative feed-back before he discovered a little notice reading "This seat is sterilized in 60 seconds." In short, he had found a Sewage Disposal Unit.

This, then, was the high spot of his trip. It is true that subsequently he patronised Clean Sanitary Rest Rooms, Rest Rooms with Sanitary Seat Covers, and on one occasion even a Hygienic Sanitary Rest Room. In Chicago he found the seat encircled by a paper tape of the kind used to open bridges, bearing red crosses and the motif "Sterilised for *Your* Protection" worked tastefully in green, and in New York he explored the gigantic underground establishment in Radio City Music Hall with television laid on. He even visited Hygiene, Colo. But it is to Cleveland that his admiration goes; he tells us he is thinking of starting a bowling alley underneath our museum.

* * *

Do we doctors, who are largely concerned with upsetting Nature's balance between the animal and its environment, the parasite and its host, and the natural law of the survival of the fittest, ever stop to consider these wondrous mechanisms?

I was musing in this vein on one of my Sunday perambulations of the Round Pond in Kensington Gardens. A random count of the little boys removing specimens of *Gasterosteus aculeatus* (three-spined stickleback) from the pond showed, at midday, 20 boys with an average of 10 fish each. Unselected boys were questioned and none admitted to returning the fish to the water at the end of the day, so that assuming that fishing takes place from 10 A.M. to 6 P.M. on an average throughout the year—which my occasional observations would lead me to believe—and supposing that each boy takes two hours to catch 10 fish—an assumption gained only through personal experience—approximately 800 specimens of the fish are removed daily. There is, I am sorry to relate, no close season. This figure, being a gross approximation, can only be offered as a rough guide to the extent to which this natural balance between the predator (little boys) and the victim (the three-spined stickleback) has been reached in this particular ecological microcosm. Yet there is no sign that the pond needs re-stocking, and the supply is maintained. 800 sticklebacks a day go to 80 homes in jam-jars to die a miserable death, providing 80 little boys (some of them are girls) with pleasure and interest. I hope no-one ever tries to stop it.

* * *

News from Another Ministry.—I am told by my friend the Vicar that the only church service where a collection is obligatory is that for the Churching of Women. After conducting this service for a parishioner the other day he presented to her the Offertory Plate. "Good gracious," she said, fumbling in her bag; "I thought all this was on the Health Service."

Letters to the Editor

PREVENTION OF DUST DISEASES

SIR,—Dr. A. I. G. McLaughlin (July 11 and 18) has given us an excellent survey of the possibilities of prevention in common lung diseases. However, I wonder whether he has purposely refrained from trying to estimate the extent of the problem. For example the X-ray survey of the Welsh valley [1] showed that more than 50% of miners and ex-miners had radiological evidence of dust disease. In the age-group 40–44, 56% of the men were affected. Nearly one in five of all the men had the disease in its most deadly form, progressive massive fibrosis. It is possible that pneumoconiosis is less prevalent in South Wales as a whole; but if the incidence is only half that found in this survey it means that there would be some 20,000 cases of progressive massive fibrosis and 50,000 of dust disease in all its forms in a community of 200,000 miners and ex-miners.

In London I see a number of ex-miners with dust disease. Thousands left the pits during the great depression; many walked to London seeking work. One such came to my outpatient clinic a few weeks ago with early congestive failure. When asked if he had visited his native valley lately he replied "Yes, I have been home three times in the last six months to bury the only remaining miner friends I had. They each died of what I've got." He made no complaint, but like so many others he asserted that no relative of his would go down the mines if he could prevent it. These facts reveal a little of the problem in the coalfields.

Dr. McLaughlin makes a plea for doctors to be interested in prevention and to press for it. It is surprising that no medical voice is heard from the mining areas demanding that this waste of human life be prevented. Of course many industries have an equally bad record. Sheffield's blast furnaces have maimed and killed thousands of workers, while the air in our industrial towns is so dust-laden that fog brings traffic almost to a standstill and kills or disables thousands each year.

The air we breathe is as important as the water we drink. We pollute it to our peril. This simple fact has been neglected by our profession and by the population. A typhoid carrier is treated, but a carrier of tuberculosis often serves us with food or drink. Water is scrupulously examined before we drink it, but the air in factory, mine, and town receives scant consideration.

London, N.W.10. HORACE JOULES.

THE PROBLEM OF PEPTIC ULCERATION

SIR,—The ideal operation for the cure of duodenal ulceration should have as its end-result a patient who returns to his previous good health, his former well-being, and his fit weight. He should in fact be absolutely symptom-free. Such a patient, although this term is a misnomer, should be able to eat and drink—the latter within the limits of propriety—without a thought for his stomach or a glance at the bottle of antacid tablets. This is the only standard by which postoperative results can be compared and assayed. Any other term such as "good" or "satisfactory" has so wide an interpretation that it may smother in its embrace a multitude of defects. For example, Moore [2] and his colleagues regard as a good result a patient who is maintained symptom-free only by the adoption of some form of postoperative régime or dietary limitation, and St. John [3] and his co-workers include in their assessment of satisfactory results those

1. Cochrane, A. L., Cox, J. G., Jarman, T. F. *Brit. med. J.* 1952, ii, 843.
2. Moore, F. D. *Ann. Surg.* 1950, **132**, 652.
3. St. John, F. B. *Ibid*, 1948, **128**, 3.

who have occasional vomiting or slight sweating and weakness after meals. Visick [4] too regarded as satisfactory patients who continued to have mild symptoms unrelieved by care.

Judged by the absolutely symptom-free standard, the operation of partial gastrectomy fails miserably. Muir,[5] publishing the results of two distinguished Scottish surgeons, states:

"It is a fact that only 9 gastrectomised patients out of 124 were completely free from digestive symptoms following operation. Furthermore, patients with stomal ulceration or post-operative gastritis were excluded from this series, which therefore represents the successful gastrectomy."

It appears, therefore, that there is a considerable field for improvement in the surgical treatment of duodenal ulceration, and I and those who work with me believe that the jejunal-shunt operation merits extended trial, for in the follow-up of cases (the longest of which are well over three years) the proportion of absolutely symptom-free results is very high.

Sir Heneage Ogilvie's criticism (July 25) that the introduction of intestinal content into the stomach is neither a normal digestive process nor a successful therapeutic measure is hardly just. Samson Wright,[6] referring to factors influencing acidity curves, says that "under certain circumstances intestinal content may regurgitate into the stomach: this is proved by the not uncommon occurrence of bile in some of the aspirated samples." The jejunal shunt is therefore an extension of a physiological process. Moreover, intestinal content can be aspirated from the remnant of any gastrectomised stomach, but its presence then is not criticised. The years alone can decide its therapeutic value, for a complete shunt of the duodenal secretions has not been previously attempted.

With regard to the retention of the pyloric mucosa, the excessive rarity of ulceration of the duodenum beyond the papilla of Vater suggests that the secretions of the pancreas and of the gall-bladder are able to neutralise any degree of gastric acidity and thus prevent any ulceration beyond their point of entry. This observed fact is made use of in the shunt operation and removal of the pyloric mucosa should not be necessary.

Finally, I would like to thank Sir Heneage, under whose guidance I had the privilege of serving during some of the war years, for his kind reply to my letter and to accept his invitation for June, 1958.

London, W.1. STANLEY AYLETT.

OBESITY

SIR,—It was surprising that in your report of the B.M.A. discussion at Cardiff the word exercise was not to be found. The man in the street knows that putting on weight is due to lack of exercise. Farmers immobilise their animals by stall feeding to make them fat. In parts of Africa prospective brides are sent to "fattening houses" where activity is reduced to make them attractively plump. Of the patients whose weight I attempt to reduce at least three-quarters date their gain in weight from a period of forced inactivity—fracture, operation, childbirth, or change of occupation.

On the other hand physiologists assure us that it is necessary to walk 66 miles at 4 miles per hour to consume one pound of fat. What is the explanation of this apparent discrepancy?

I submit, Sir, that exercise is one of the most important factors in the control of appetite. When exercise ceases, control of appetite also ceases, leading to increase in weight, leading to decreased activity, leading to further increase in weight. A vicious circle is set up, and at about 25 stone all muscular activity ceases and the patient has nothing to do except grow in size.

As an armchair physiologist I suggest that diminished muscular activity causes increased portal circulation and increased appetite, and vice versa. In hard times, people tighten their belts, thereby reducing portal circulation and appetite. Patients starting amphetamine treatment frequently say, before they have lost any weight, that they feel thinner—owing I suspect to redistribution of blood from portal to systemic circulation. Even at rest the motionless attitude of the obese is in contrast to the continual muscular activity of the thin subject.

Whatever the mechanism for controlling appetite may be, I would repeat that lack of exercise is an important primary factor in most cases of excessive weight and a secondary factor in all cases.

Dorchester, Dorset. C. HOLLINS.

ENDOCRINE FACTORS IN AFFECTIVE DISORDERS

SIR,—In her description of the therapy of menopausal symptoms (July 25) Dr. Joan Malleson has obviously used great care in selecting cases with nervous symptoms for therapy with œstrogens. It is also clear that she believes that the first line of treatment lies in reassurance, the use of mild sedatives at night, and so on. I felt, however, that she did not *emphasise* that œstrogen therapy cannot be prescribed without accepting the fact that its withdrawal (even the withdrawal of a tube of 'Menopax') very often causes bleeding. The bleeding is irregular and may be profuse before menstruation has ceased; and even more worrying to both the patient and her doctor is postmenopausal bleeding. If these side-effects (which mimic cancer symptoms) are faced at the outset, and if, in selecting "nervous" cases, the practitioner uses discrimination comparable with that shown by Dr. Malleson, then any bleeding which follows can be justified.

Writing as a gynæcologist whose outpatients include many "œstrogen-bleeders," I am quite content to assist a colleague in general practice with the diagnosis and treatment of postmenopausal hæmorrhage if, for instance, he writes to say that his patient's flushes were so frequent and so severe that nothing but œstrogens seemed to relieve them. I am dreading the arrival of the first "anxiety-bleeders" bearing a letter with perhaps an apt quotation from Dr. Malleson's essay.

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Birmingham, 15. H. C. MCLAREN.

SIR,—Dr. Malleson's description of a "negative-state balance" in women is of particular interest to me because, over the past few years, it has been possible to investigate and watch here a series of women with a syndrome similar and possibly parallel to—but not the same as—that which she describes.

In 1948 Roberton [1] described a syndrome, which he had commonly met in Christchurch, New Zealand, and which he described under the heading "Lassitude, coldness and hair changes following pregnancy and their response to treatment with thyroid extract."

In 219 patients with 483 pregnancies, he found severe symptoms after 10% of the pregnancies, mild symptoms after 26%, and doubtful symptoms after 11%. These symptoms were, essentially, an increased sensitivity to cold (yet an intolerance to heat might confuse the diagnosis), dryness of the hair, and loss of 1 stone or more in weight in the severer cases. He found the basal metabolic rate in the lower normal zone and considered this test unsatisfactory and even misleading in the diagnosis. He had previously written [2] on mild hypothyroidism, and thought that hypothyroidism

4. Visick, A. H. *Ann. R. Coll. Surg. Engl.* 1948, **3**, 266.
5. Muir, A. *Brit. J. Surg.* 1949, **37**, 165.
6. Wright, S. Applied Physiology. London, 1940. p. 611.

1. Roberton, H. E. W. *Brit. med. J.* 1948, ii, suppl. 93.
2. Roberton, H. E. W. *N.Z. med. J.* 1946, **45**, 170.

following pregnancy was of special interest as it was a local condition in Christchurch associated with endemic goitre, and that pregnancy was far the commonest predisposing or precipitating cause of mild hypothyroidism. He considered that the diagnosis had to be made by a careful history, if possible with confirmatory evidence from relations; there were no abnormal physical signs, but he diagnosed with confidence if lassitude, cold sensitivity, and dry and usually falling hair were present; and he found that thyroid was not likely to be effective if any of these features were absent. He found that dried thyroid gr. 1/2 daily caused slight improvement, but gr. 1 a day was better; younger patients could stop treatment in four to six months, and usually remained well. Relapse almost always followed a later pregnancy; and thyroidectomy almost always led to hypothyroidism after a pregnancy.

No reference to his work has been noted in any recent journals or textbooks.

In 1950, his symptom-complex began to be noted in women in the third and fourth decades, who were referred to the department at West Hartlepool General Hospital for the investigation of possible anæmia as a cause of their "tiredness." Their symptoms were found to date back, with a varying degree of closeness, to a confinement, either comparatively recent or a few or more years before, and to conform closely to the "Roberton syndrome."

They are chronically tired and listless, both physically and mentally, and, whether they sleep well or not at night, they awake unrefreshed; they are "always cold," and their hair has "lost its life" and may comb out easily. They are depressed and have bouts of weeping, and their irritability is commented on by relations; the appetite varies; there are commonly aches in the thighs and buttocks. Typically these women are slim or thin and the tracheal rings can be easily felt; the thyroid isthmus is just palpable or not at all. One important point about the cases seen here, and not mentioned by Roberton, is the typical and frequent loss of libido. If a question concerning this is kept until the end of the history, it will provoke an answer such as "I have lost all interest," "It is causing trouble with my husband," "It was this that really made me go to my doctor."

The basal metabolic rate has been estimated on many of these cases, and I have come to expect an initial result in the lower normal range; but an anomalous feature has been noted in that after several weeks or a few months on thyroid treatment a repeat test may show a lower figure than before.

In general, the response to a slowly increased dose of thyroid over several months has given improvement convincing both to the women and their doctors. The loss of sex feeling is the symptom last to improve.

It is of interest that recent work with radioactive iodine (Greer 1951)[3] has shown that when thyroid hormone is given to normal humans, a depression of endogenous thyroid function results (thus of 25 subjects, a third showed marked thyroid depression on gr. 1. daily for three weeks, and all but 4 showed marked thyroid depression on gr. 2 daily).

The mental and physical vitality which returns to the patient may give quite a vivid improvement in facial appearance, and, in one or two cases where photographs have been taken before and after treatment, observers have hardly believed that they belong to the same person.

One patient became pregnant while taking thyroid; this was stopped in the early months and she has kept well to date, 4 months after her confinement; she recalls how well the tablets made her feel previously. (Some of Roberton's patients said that they never felt so well as when pregnant.) Another, aged 32, when first seen with symptoms dating from the birth of her second child two years before, had had a thyroidectomy done when she was 16, for symptoms which suggest thyrotoxicosis. Another had had a severe megalocytic anæmia during the significant pregnancy.

One or two of the patients have been investigated while on holiday from other parts of the country: and, besides these, some of the local patients have been difficult to keep in touch with, possibly because, as with Dr. Malleson's case 2, they have felt so well that they considered it unnecessary to report to their own doctor. This syndrome is quite distinct from typical—even mild—subthyroidism, which is also fairly common in this district. Typical subthyroidism has, however, been seen here dating from a pregnancy; and in a few other cases patients have presented features such as to make the differentiation between the Roberton syndrome and the typical mild subthyroidism blurred.

Insufficient time has passed to obtain a clear idea as to how long thyroid treatment is necessary in this syndrome of atypical subthyroidism; it is hoped that an opportunity will arise later for a more detailed description of the cases.

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co. Durham. R. T. COOKE.

3. Greer, M. A. *New Engl. J. Med.* 1951, ii, 385.

SURGICAL TREATMENT OF VARICOSE VEINS

SIR,—I was fascinated by Mr. D. Lang Stevenson's letter of July 25.

As the procedure to which he refers—namely, stripping—has been reimported from the United States, it is probably of value to determine our Atlantic cousins' view of this "stretching and tearing," now dignified by the title "surgical treatment." One of America's leading textbooks of medicine,[1] recently reviewed in your columns, discusses stripping techniques in the following terms: "These operations were practically abandoned many years ago as being too dangerous, but now surgeons are returning to them, who knows why?"

London, W.1. STANLEY RIVLIN.

THE KIDNEY AND METABOLIC DISEASE

SIR,—Your leading article of July 25 gives an explanation of the high ammonia coefficient of the urine in many cases of the de Toni-Fanconi syndrome which is probably incorrect. It has been suggested[2] that this is due to a high concentration of amino-acids in the lumen of the distal renal tubule, which increases the amount of substrate for ammonia synthesis. Considerable doubt is thrown on this explanation by observations showing that ammonia synthesis is perfectly normal in hepatolenticular degeneration where there is a similar increase of amino-acid substrate.[3,4]

High urinary ammonia may be expected in any condition where there is a combination of systemic acidosis and an intact distal tubular mechanism for ammonia synthesis. Chronic acidosis causes an increase of glutaminase and amino-acid oxidase in renal tissue[5] with consequent increase of ammonia synthesis from the same concentration of *plasma* amino-acid. The emphasis should therefore be placed on increase of enzymes within the renal cells rather than on an increase of substrate concentration within the tubular lumen. In the de Toni-Fanconi syndrome there is a definite correlation between the presence of a high urinary ammonia coefficient and systemic acidosis.[6,7] Normal or low ammonia production may, however, be found in cases showing normal acid-base balance or in cases where there is damage to the mechanisms of ammonia synthesis as a result of more extensive renal failure.

Postgraduate Medical School
of London, W.12. M. D. MILNE.

1. Beckman, H. Pharmacology in Clinical Practice. Philadelphia and London. 1952.
2. Milne, M. D., Stanbury, S. W., Thomson, A. E. *Quart. J. Med.* 1952, **21**, 61.
3. Cooper, A. M., Eckhardt, R. D., Faloon, W. W., Davidson, C. S. *J. clin. Invest.* 1950, **29**, 265.
4. Milne, M. D. Unpublished observations.
5. Davies, B. M. A., Yudkin, J. *Biochem. J.* 1952, **52**, 407.
6. McCune, D. J., Mason, H. H., Clarke, H. T. *Amer. J. Dis. Child.* 1943, **65**, 81.
7. Bickel, H., Smallwood, W. C., Smellie, J. M., Hickmans, E. M. *Acta Pædiat. Stockh.* 1952, **42**, suppl. 90, 27.

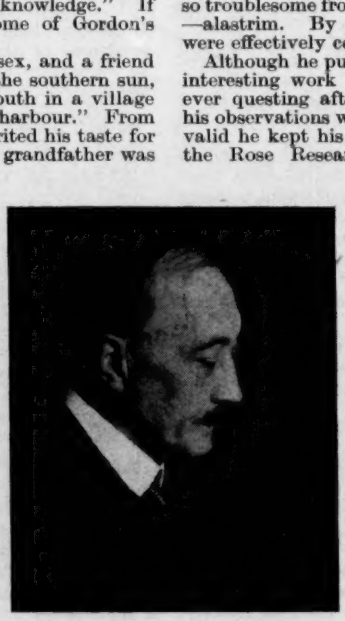
Obituary

MERVYN HENRY GORDON

C.M.G., C.B.E., D.M., B.Sc. Oxfd, LL.D. Edin., F.R.S.

IN one of his last contributions to our columns Mervyn Gordon reaffirmed his creed as a scientist. "It is the glory of a good bit of work," he wrote, "that it opens the way for still better, and thus rapidly leads to its own eclipse. The object of research is the advancement, not of the investigator but of knowledge." If modern bacteriology has outmoded some of Gordon's work it was often with his own help.

He was born in 1872 in Harting, Sussex, and a friend later wrote: "his character sloped to the southern sun, as was but natural, for he spent his youth in a village of great beauty overlooking Chichester harbour." From his father, Canon H. D. Gordon, he inherited his taste for archæology and history. His maternal grandfather was William Buckland, geologist and dean of Westminster, and one of his uncles Francis Trevelyan Buckland, author of *Curiosities of Natural History* and a man with "an insatiable love of Nature."



From Marlborough he went to Keble College, Oxford, and St. Bartholomew's Hospital. He qualified in 1898 and at once embarked on the half-century which he was to spend in research, as assistant bacteriologist, bacteriologist, and consultant bacteriologist at Barts. His interests were diverse, his originality remarkable; and in retrospect it is astonishing how much microbiological research can be traced back to his laboratory at the beginning of the century. He was assistant bacteriologist to the Royal Commission on Sewage Disposal, and his early work on waterborne typhoid profoundly influenced the control of that disease. He was also interested in air hygiene and reported on the ventilation of the debating chamber of the House of Commons. His pioneer investigation of the streptococcus led him to suspect the relation between that micro-organism and scarlet fever, which is now accepted as proved.

Lord Horder, who helped Gordon in his work on the classification of the streptococci and of the meningococci, first remembers him when he was working with Klein in the laboratories at Barts.

"In those pre-Ministry days the bacteriological work of the Local Government Board was farmed out at various hospitals. Klein's contributions were of a high standard and from him Gordon learnt the bacteriological techniques which, later, put him into the first rank amongst researchers in this field. The chief medical officer at the board was Sir William Power, F.R.S., himself as fine a mentor in the art of writing and presenting a report as Klein was in the technology of his subject. To these two men Gordon constantly paid tribute. But in his work the man from whom he received his greatest inspiration was Robert Koch, whose influence continued till the end. Indeed, there were those who thought that Gordon's worship of the master went too far."

In 1904 he became one of the original members of Army Pathological Committee, and during the 1914–18 war his work on cerebrospinal fever was masterly and revealed his aptitude as a leader. He gathered around him a group of workers whose individualism was blended by his tact and understanding, and under his guidance the bacteriological problems of the disease were elucidated, its immunological aspects studied, and its epidemiology clarified. Later he used to tell how during the grave epidemic in the training camps round London he used to have infected cerebrospinal fluid sent to him and put it up against his own antisera. Before that, treatment with a pooled antimeningococcal serum had been used without much effect. He recalled his excitement when he found that the organism from an infected case was agglutinated by one of his sera and his delight when a dying airman recovered after treatment with this serum.

But it was in the study of virus infections, notably smallpox, that his capacity for original thought and ingenuity of experiment showed itself most brilliantly. Until culture of virus agents in the developing chick became recognised and a standard procedure, his flocculation test was the only really practical means of reaching a rapid and accurate laboratory diagnosis of the pock diseases; and it was a diagnostic weapon of great precision. Its special value lay in its exactitude and sensitivity, and it proved especially useful in the recognition of modified variola major and that condition so troublesome from the point of view of the administrator —alastrim. By its use several outbreaks of alastrim were effectively controlled.

Although he published many papers, much of his most interesting work remained in his notebooks. He was ever questing after knowledge, and until satisfied that his observations were accurate and his deductions seemed valid he kept his own counsel. After the publication of the Rose Research on Lymphadenoma in 1932, he continued with enthusiasm to investigate that disease, feeling that it was a key subject in determining whether human neoplasms may be due to infection with virus agents.

E. R. C., who was a member of the Rose research team, recalls Gordon at work "in his aerie at the top of the path. lab. at Barts, where he was supported by the faithful Joe Hegarty, and, of course, the rabbits."

"His enthusiasm and burning zeal were contagious. Every day was a thrill. We even looked forward with keenness to doing nothing but differential blood-counts on rabbits day after day for weeks on end. We loved and admired him. We forgave him all; even when he caught us at the end of a long day and kept us back another two hours or more expounding a new theory and convincing us of its truth. The next day we would find he had discarded the theory, having used us to argue himself out of it.

"Never did a man's speech so belie his character. His stories at teatime were a delightful disgrace. His sidelights on history were scurrilous. His comments on colleagues who annoyed him were outrageous. Yet he never said a cheap thing and never hurt. His 18th-century invective cloaked a most kind and charitable nature. Who else could say without offence of a colleague sitting on a stool that he was a second-rate edition of Rodin's *Thinker* whose head was full of thick, damp, wet, soggy sawdust. His humour was robust. One day the late Sir Holburt Waring got stuck in the lift and only his angry head appeared above the floor. Gordon, seeing this, rushed back into his lab., seized a banana, peeled it, and pushed it through the bars.

"Gordon had a passion for honesty, and all his work was done and recorded with the greatest care and precision. He could face defeat and start again. His only comment, when Paul Garrod produced a graph which showed with devastating clarity that the supposedly pathogenic fungus which we had all been working on for months was only an airborne contaminant, was 'How I hate graphs.' An hour later he had started a new line of research. A great and colourful man."

B. D. P. describes the little skylit laboratory at Barts where Gordon worked enthusiastically in his retirement.

"The traditional white coat hung in tatters around him while every situation that arose appeared to recall to his mind another even more humorous. This was usually a caricature of some pretentious or ridiculous idiosyncrasy of a former acquaintance. He could create enormous hilarity, yet without deliberate malice. Junior colleagues were treated as well to his adventures in book-collecting and to his knowledge of the works of Harvey. In tackling any problem he would never omit to enjoin one to proceed from the known to the unknown in the steps of that master. In these later years he would leave to others the test of actuality, the control experiment, regarding their efforts benignly and with tolerance, and perhaps ignoring their results; but he remained

enthusiastic, genial, welcoming new ideas, able to discourse admirably, lucidly, and with deep seriousness on the intricacies of immunity or expose ill-founded claims."

In summing up his scientific work, S. P. B. regrets that to the rising generation of British bacteriologists Mervyn Gordon is probably no more than a name associated with meningococcal types.

"Those who only saw him on one of those rare occasions in the post-war years when he emerged from retirement to attend a scientific meeting can have no true conception of his scientific worth; for, although he continued to be keenly interested in microbiology, his conception of this science and its problems had not kept pace with the advancing years. He lived in the scientific past and must, at times, have seemed somewhat out of touch with present-day trends; but he had occupied a position of eminence among microbiologists which was founded on brilliant achievement. His work on the classification of streptococci, although based on fermentation reactions and today outmoded, served its purpose at the time. And although his contribution to an understanding of meningococcal types was not the first it was the most complete and revealing. But his outstanding piece of work was probably the study which he made of the viruses of vaccinia and variola, which appeared as a monograph in the Medical Research Council series. His last work, on the ætiology of Hodgkin's disease, in the opinion of many did not rank with his earlier achievements. He was not perhaps as critical of his findings as he had been earlier in his career, but he believed that he had demonstrated the virus ætiology of Hodgkin's disease. Only recently he published a short paper marshalling the evidence in support of this view. And when the last word is said it may turn out that he was right after all, and should this be so we will all regret that he is no longer with us to enjoy his triumph."

Though Gordon was generally regarded as a recluse by those who only knew him in the laboratory he was, Lord Horder points out, a man of great versatility.

"A painstaking archæologist, he carried the researches of his father a big step onward. Nephew of Frank Buckland the naturalist, he was learned in some of the wider aspects of biology and he put on record some interesting memories of this remarkable man—the discoverer of John Hunter's body in the vaults of St. Martin-in-the-Fields in 1859. His reading spread over a wide field, but his favourite authors were Locke and Hume on the philosophic side and Goldsmith on that of romance. He spent many happy hours in second-hand bookshops and in Farringdon market. A lucky find on one of these excursions was a first edition of *The Deserted Village*, which I treasure as a birthday gift."

"Although his colleagues throughout the world appreciated Mervyn Gordon for his contributions to scientific medicine it was as a man that he appealed to those who had the good fortune to know him well," writes his friend W. J. T.

"He was endowed with many attributes, all his attributes were gracious, and perhaps the most notable were his enthusiasm, his kindness, and a most charming quality of making his juniors his equals.

"Osler would have called him an exemplary character in medicine, for he was not merely a bibliophile but a bibliomaniac, and a man of wide interests and catholicity of outlook which made him a most delightful companion and a charming host. Apart from his devotion to his chosen profession his special interest was history, and as he spoke of past generations of the old families of West Sussex and South Hampshire he brought them to life again, giving the past a warmth of humanity without which history is but a cold narration of events. The pleasure he had in his work, indeed in all his interests, was shared by his late wife, a daughter of the late Sir William Power, and in truth this was a perfect example of the saying that a pleasure which is shared is doubled."

For his services to the War Office Gordon was appointed C.M.G. in 1917 and C.B.E. 1919. His reputation as a scientist was recognised by the Royal Society, which elected him to the fellowship in 1924, and the University of Edinburgh conferred on him the honorary degree of LL.D. in 1936. Though he bore his honours with modesty, they gave to him, and to all his friends, a solid satisfaction as an expression of appreciation of a full and useful life. He died at his home at East Molesey on July 26.

MARGARET CHRISTINE TOD

M.B.Edin., F.R.C.S.E., F.F.R., D.R.

Dr. Margaret Tod, assistant director of the Holt Radium Institute in Manchester, died at her sister's home in Edinburgh on July 26.

Her interest in medicine was aroused during the 1914–18 war when she trained as a V.A.D. and organised a small hospital unit for disabled naval personnel in her father's house at Corstorphine. She graduated in medicine in 1924 at Edinburgh University, where her distinguished career earned her the Ettles scholarship for the best student of the year. In 1927 she gained the F.R.C.S. at Edinburgh and afterwards held surgical appointments at the Bruntsfield Hospital for Women and Children and the Edinburgh Royal Infirmary. Her interests, however, were shifting even then to the use of radium and X rays in malignant disease. This was stimulated by her collaboration with the late J. J. M. Shaw, with whom she worked for a time on the radium beam unit. Later she took the F.F.R., by examination.

In 1936 she paid an extensive visit to the Christie Hospital and Holt Radium Institute in Manchester. This visit can in retrospect be seen as a turning-point in her career, because in 1937 she returned to Manchester as assistant director of the institute.

During the sixteen years that she spent in Manchester she shouldered an immense task. It would be wrong to call this a burden: there was nothing she loved more than the increasing responsibilities of a rapidly growing radiotherapy centre. She was the author of many publications, all the result of careful investigation into the radiotherapy of malignant disease. Her special interest was the treatment of cancer of the uterus and in this field she made perhaps her greatest contribution. Her papers on this subject, which were all designed towards the more scientific treatment of carcinoma of the cervix, appeared chiefly in the *British Journal of Radiology* and *Acta Radiologica*. The chapters on carcinoma of the uterus in Paterson's *Treatment of Malignant Disease by Radium and X-rays* were written by her. Her work was based not only on statistical evidence—for which she had a passion—but just as solidly on her deep knowledge of the patients and their problems. There must be many hundreds of her patients alive today who realise that they were cared for as individuals and who regarded their doctor with pride and with affection.

Her national reputation gained for her a place on the Radium Commission until its dissolution. As acting secretary she gathered together the information gained over the years by the commission. This was published as a monograph on "The extent to which cancer patients in Great Britain receive radiotherapy" and was a basis for the planning of radiotherapy centres.

All her work was characterised by an objective outlook, and she was well endowed for assessing by statistical methods the results of radiotherapy. Thus she was joint author of the three statistical reports that have been published by the Christie Hospital and Holt Radium Institute on the results of radium and X-ray treatment. This same objective outlook led her at one time to study skin erythemas on herself and her colleagues—with interesting if somewhat lasting effects!

The Manchester diploma courses in radiotherapy were organised by her, and these attracted many young radiotherapists from other lands. The friendships that resulted were above all frontiers of age and nationality, and she will be mourned beyond the oceans. (It was not uncommon to find her in the garden she cherished, with two or three students from different continents variously absorbed in wheeling a barrow or plying a hoe.) So it was, too, with the friends she made in her visits abroad. She knew France and Italy well, and she lectured in South America and in Austria under the auspices of the British Council. But it is at home that her friendship

will be missed most, and the ready help of her active mind—a mind which remained interested and penetrating to the end. And, like her patients, her colleagues will miss her for her outstanding kindness.

G. H. writes:

"At the beginning of the first world war Peggy Tod, just out of her teens, took a training as a V.A.D. and in physiotherapy, and with the consent of her father, Mr. T. W. Tod of Clerwood, Corstorphine, turned the greater part of the family house into a naval auxiliary hospital, where she undertook almost single-handed the aftercare, and in fact rehabilitation, of orthopædic and fracture cases, under the guidance of a young naval surgeon, now Sir Cecil Wakeley, F.R.C.S. At the end of the war she was awarded the A.R.R.C., which honour she prized greatly.

"Those of us who knew her in her student days remember her as a quiet, modest, unassuming, and brilliant student who fulfilled to the utmost her early promise, in that she became one of the leading radiotherapists in the country.

"It was characteristic of her to invite her friends and colleagues on many occasions for walks and talks in her delightful gardens and woods where, surrounded by her Shetland sheepdogs, which she bred for many years, she entertained us royally. During her student and postgraduate years in Edinburgh, in addition to working hard and achieving outstanding success in her career, she nevertheless found time to organise a boys' club in Corstorphine, and for several years ran football clubs, games clubs, and lectures, and took a personal interest in the career of each and every member; and there must be many grown men now who will remember with gratitude all she did for them. At a later date, when she was already working in her specialty of radiotherapy in Manchester, she contributed largely to a fund which enabled young doctors to study radiotherapy in other centres, and at various times in her life she helped some of her colleagues who were in financial difficulties, though usually the recipient had no knowledge of where the help had come from.

"Peggy Tod had many friends, as evidenced during her last illness by the many visitors who came from all parts of the country to see her, and the masses of flowers by which she was continually surrounded. She accepted her fatal illness with the courage one expected of her, and until the very last was deeply interested in the activities of her colleagues, particularly in Manchester."

THOMAS BLANCHARD SELLORS

M.D. Durh.

Dr. Blanchard Sellors, who died on July 22 at the age of 80, practised for most of his professional life at Westcliff-on-Sea. He was educated at King Henry VIII School, Coventry, and at the Middlesex Hospital where he qualified in 1898. After holding a resident appointment at Grove Hall Asylum, Bow, he settled in practice at Westcliff. Later he was appointed physician to the skin department of the Victoria Hospital, Southend. He was also divisional medical officer for the National Union of Fire Brigades, and a lecturer and examiner for the St. John Ambulance and British Red Cross.

During the 1914–18 war he served with the R.A.M.C. in France, and J. B. A. recalls how in 1917 he came to join no. 10 general hospital in France.

"Sellors had previously been attached to a regimental unit, but the rigours of that task were unsuited to a man of 46, and the long foot marches proved too much for him. In his own words: 'My feet let me down.' It was indeed providential that his feet did 'let him down,' for his wide medical experience in both medicine and surgery, acquired in a good general practice at home, had made him eminently suited as a hospital M.O. I was at first diffident of having so senior a man under me in the medical division of which I was in charge, but T. B. S. was the last man in the world to take advantage of his greater experience, or to resent serving under someone nearly twenty years his junior.

"As an M.O. he was indefatigable—nothing was too much for him—and he was willing and able to turn his hand to surgery, anæsthetics, or even radiology, when the stress of circumstances called for such help. It is not surprising that Sellors soon became the most useful man in the hospital, and, even if his feet had so recovered as to fit him for service in the front line, no C.O. would have ever agreed to release him from the post in the hospital which he served with such great distinction.

"Although at that time no longer young, Sellors decided that he would like to attain high academic qualification. He employed his spare time in serious reading, and he was rewarded by obtaining the M.D. Durh., shortly after the end of the war. Our friendship, begun in 1917, ripened as years went on, and my association with him, professionally and socially, tended ever to increase my admiration. He was a great doctor, and a delightful host."

Sellors retired from practice in the late '30s and looked forward to finding more time for his varied hobbies, which included church architecture, fishing, and gardening. But in 1939 he returned to work, and he "helped out" in a practice in Berkhamsted during the war years.

Dr. Sellors was twice married, and he leaves a daughter and a son, Mr. T. Holmes Sellors, F.R.C.S.

GEORGE ERNEST VILVANDRÉ

M.R.C.S., F.F.R.

Dr. Vilvandré, consulting radiologist to the London Hospital, died on July 26 at his home at Redbourn, Herts.

He was born in Paris, but he went to school in England and he continued his medical education at the London Hospital, where he qualified in 1910. After holding house-appointments at the London and at the Poplar Hospital for Accidents, and a clinical assistantship at the Chelsea Hospital for Women, he settled in general practice at Staplehurst in Kent.

During his service with the R.A.M.C. in France in the 1914–18 war he became interested in radiology and its use in the treatment of war injuries, and later he was appointed radiologist to the 16th General Hospital and to the Guildford Military Hospital. To these war years belong his series of papers on such topics as the radiography of gunshot wounds of the skull and thigh, movements of foreign bodies in the brain, and the X-ray diagnosis of gas in the tissues.

[From the *London Hospital Gazette*

On demobilisation he gave up his general practice to give all his time to his new-found specialty. He returned to the London Hospital to work with J. H. Sequeira in the skin department. Here Vilvandré undertook much of the X-ray therapy, and his skill in the treatment of ringworm led to his being made director of the Poplar ringworm clinic.

In 1922 he became assistant radiologist to the London Hospital, and soon afterwards he began to study the radiography of the gastro-intestinal tract, the technique of which was then in its early stages. With the coöperation of the surgeons and pathologists of the hospital he gave much time to checking his radiological observations in the operating-theatre and in the post-mortem room. Though this part of his specialty remained his principal interest, he did much to advance X-ray therapy, and he sponsored the installation of the first "deep" therapy apparatus at the London. In 1930 he became radiologist to the hospital and director of the radiological department. He was also lecturer in radiology to the medical college, and his well-known informal demonstrations were popular with the students. In 1942 he retired from the hospital, but he continued his private practice and his work as radiologist to St. Albans Hospital.

He was a member of the council of the British Institute of Radiology, and he presided over the clinical section of the Royal Society of Medicine in 1947. Though he had become a naturalised Englishman when he was 21, he remained closely attached to France. He often visited Paris, and he was a correspondent of the Société Médicale des Hôpitaux de Paris.

He leaves a son and a daughter. His eldest daughter was lost at sea in the late war on her way home from service as a nurse with the British Forces in the East.

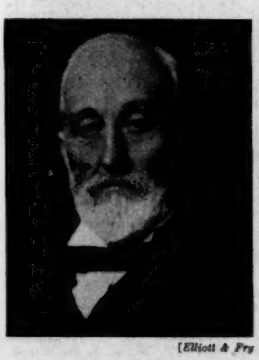
ROBERT OSWALD MOON

D.M. Oxfd, F.R.C.P., J.P.

Dr. R. O. Moon, consulting physician to the National Hospital for Diseases of the Heart and the Royal Waterloo Hospital, died on July 28 in his 89th year.

The youngest son of Robert Moon, barrister-at-law, he was educated at Winchester, New College, and Guy's Hospital.

Shortly after he qualified in 1896, war broke out between Greece and Turkey, and he served as a surgeon in the Phil-Hellenic Legion. Returning to London he graduated as B.M. at Oxford in 1899 and obtained his D.M. and the M.R.C.P. in 1900. Despite these higher qualifications, when the South African war started, he served first as a trooper in the Hampshire Yeomanry, and it was not until a year later he became a civil surgeon in the Field Force. For his work in this war he was mentioned in despatches.



[Elliott & Fry

After these years of adventure he returned to London, and settled in practice as a consultant in diseases of the heart. In due course he was elected to the honorary staffs of the National Hospital for Diseases of the Heart, the Royal Waterloo Hospital, and the Western General Dispensary. He was a man of many interests outside the profession, and as a staunch Liberal, and a member of the Reform Club, he contested Marylebone twice in 1910, Wimbledon in 1922, and the City of Oxford in 1924 and 1929. In all these contests he was unsuccessful but not disheartened.

When the first world war broke out, the spirit of adventure again seized him, drove him to volunteer at the age of fifty, and sent him to Serbia to join the Lady Paget Hospital at Skoplje in Serbian Macedonia. Here he found the great typhus epidemic of 1914–15 in full swing, and immediately insisted, against all advice, on taking over the Polymesis Hospital which was then full to overflowing with patients dying of typhus. Fourteen days later he was stricken himself, and hovered unconscious for days before the crisis came and he recovered. He was then invalided home and used his experience to give the Chadwick lecture on Typhus in Serbia, published in *The Lancet* in 1916. For the rest of the war he served in the R.A.M.C. with the rank of major.

Then followed years of quiet harvesting, when politics, medical history, philosophy, and German literature fully occupied his leisure thoughts. He wrote two medical books on his specialty; but his main interest, based on his classical knowledge, was shown in his book on *The Relation of Medicine to Philosophy*, his FitzPatrick lecture before the Royal College of Physicians in 1921 on Hippocrates and his successors, and his monograph on *Medicine and Mysticism* (1934). Widely read in German literature he also published translations of Goethe's autobiography, of *Wilhelm Meister*, and of Eckermann's *Conversations with Goethe*. He was elected F.R.C.P. in 1909, and he served as assistant registrar at the college from 1926 to 1933. He was president of the historical section of the Royal Society of Medicine in 1932.

J. J. A. writes: "Anyone who saw this trim, white-bearded, rather short little man, with his large gentle-looking blue eyes, walking up Wimpole Street on a cold day without an overcoat might be forgiven for not knowing that he had been through three wars and contested five general elections. He looked more like the gentle philosopher that he really was. But there was an obstinate mental element in him, and a toughness of physical fibre that went with his political views and spartan outlook on life, which sustained him throughout his 88 years. His wife died in 1933, and he is survived by one son and three daughters, the youngest of whom is the wife of the headmaster of his old school, Winchester."

JOHN PRINGLE

M.D. Dubl., D.P.H.

Dr. Pringle died at his home at Gosforth, Cumberland, on July 12, at the age of 84. He qualified from Trinity College, Dublin, in 1894, taking his M.D. two years later. He practised in Withington Road, Manchester, till 1946, when he settled in Cumberland. In his retirement philately was the chief of his many interests, and he had one of the best stamp collections in the country. He was particularly interested in the balloon post, about which he had written a book.

In 1911 he married Dorothy Beney, of Beckenham, who survives him with four sons.

Mr. VICTOR BONNEY

Dr. G. W. Kosmak, advisory editor of the *American Journal of Obstetrics and Gynecology*, writes: "The news of the death of Victor Bonney will prove a great shock to his many American friends and colleagues. He endeared himself during his visits to this country and became liked and noted through his professional accomplishments which were of a high order as manifested in his writings. He will be long remembered for his contributions to gynecologic surgery and his loss greatly mourned."

Births, Marriages, and Deaths

BIRTHS

ARNOTT.—On July 30, at Central Middlesex Hospital, to Dr. Ruth Arnott (née Burt), wife of Dr. D. C. Arnott—a daughter.

BLOOMFIELD.—On July 20, at Frankston, Victoria, Australia, to Jean (née Wren), wife of Dr. John Bloomfield—a daughter (Susan Jane).

FOSTER.—On July 29, at the South London Hospital for Women, to Joan (née Appelian), wife of Dr. D. V. Foster—a daughter.

GRIFFITHS.—On July 31, to Joan, wife of Dr. Peter Griffiths, of North Petherton, Somerset—a son.

LUNZ.—On July 22, at Liverpool, to Joyce Lunz (née Douglas) M.B., and Manuel Lunz, M.CH. ORTH., F.R.C.S.—a son.

MACKAY.—On July 30, in London, to Dr. Vera Norris, wife of Dr. Donald MacKay—a son (Iain Murray).

Appointments

BLAXLAND, P. J., M.B. Lond., F.R.C.S.: surgeon specialist, Darwin, Northern Territory, Australia.

CHATTERJEE, S. K., M.B. Calcutta, F.R.C.S.: surgical registrar, Peterborough Memorial Hospital.

STOREY, G. O., M.B. Camb., M.R.C.P., D.PHYS. MED.: full or maximum part-time consultant physician in physical medicine, hospitals in the Central and Hackney groups.

Manchester Regional Hospital Board:

CULBERT, T. D., M.B. Edin., D.A.: consultant anæsthetist, United Manchester Hospitals and North Manchester Hospitals.

LINDARS, D. C., M.B. Manc.: tuberculosis physician and M.O. in charge of M.M.R. unit based on Salford.

RIMINGTON, JOHN, M.B. Manc.: tuberculosis physician and M.O. in charge of the M.M.R. unit based on Stockport.

STEWART, I. M. G., M.D. Lond., M.R.C.P.: consultant physician, Victoria Hospital, Blackpool.

THURSTON, J. G., M.B. Camb., M.R.C.O.G.: consultant obstetrician and gynæcologist, Blackburn and district hospital centre.

South-East Metropolitan Regional Hospital Board:

BLAXLAND, N. N., M.B. Lond., D.M.R.D.: consultant radiologist, South East Kent hospital group.

CARRUTHERS, K. J. M., M.B. Lond.: asst. chest physician, Canterbury, Medway, and Gravesend hospital groups.

GOLDSMITH, ERIC, M.D. Königsberg, L.R.C.P.E.: consultant anæsthetist, Woolwich Hospital group.

HALL, F. M., M.B. Birm., D.M.R.T.: asst. radiotherapist, Canterbury hospital group.

HART, M. F., M.D. Lond., M.R.C.P.: consultant in physical medicine, Seamen's hospital group.

HOENIG, JULIUS, M.D. Prague, L.R.C.P.E., D.P.M.: consultant psychiatrist, St. Francis and Lady Chichester hospital group.

HUGHES, D. R., M.B. Wales, M.R.C.O.G.: consultant obstetrician and gynæcologist, Greenwich and Deptford Hospital group.

KENT, J. V., M.R.C.S., D.M.R.D.: consultant radiologist, Medway and Gravesend, and Dartford hospital groups.

MERRY, A. J., M.B. Lond., D.A.: consultant anæsthetist, Woolwich hospital group.

PERCIVAL, R. H., M.A., B.M. Oxfd, M.CH., F.R.C.S., D.C.H.: consultant surgeon, Sidcup and Swanley hospital group.

ROBINSON, H. J., M.D. Dubl.: consultant in chest diseases, Medway and Gravesend hospital group.

RUBIN, JOSEPH, L.R.C.P.E., D.M.R.D.: consultant radiologist, Brighton and Lewes hospital group.

STORR, B. S. H., B.A. Camb., M.R.C.S., D.M.R.D.: consultant radiologist, Brighton and Lewes, and Mid-Sussex hospital groups.

WHYTE, J. H. S., M.B. Aberd., D.P.M.: asst. psychiatrist, St. Augustine's Hospital group.

Notes and News

FIGURES FROM THE MENTAL HOSPITALS

WITH customary briefness, the Board of Control [1] present a few details about the mental health service during the year 1952. The numbers of patients in mental hospitals again increased, and reached 137,039—some 1413 more than in the previous year. Overcrowding persists, and at the end of the year there were 17,522 more patients in the 107 hospitals reviewed than they were designed to hold. In one hospital the recreation hall is being used as a dormitory. The amount of hardship caused by this severe shortage of space continues to grow, and to hinder recovery of the mentally sick. The number of trained male nurses in the service has risen by 119, but the number of trained women nurses has fallen by 120; and there were fewer men students entering than the year before, but slightly more women students. The death-rate from tuberculosis among the patients continues to fall and in 1952 had reached 2·1 per 1000 patients—less than half the rate of a few years before. Dysentery now responds well to treatment; there were 5·3 cases per 1000 patients, and a case-mortality of less than 1%.

University of Oxford

On July 18 the following degrees were conferred:

D.M.—R. M. Mason, J. T. Wright.

B.M.—B. C. Davies, B. J. Drake, W. A. F. Macdonald, Harold Merskey, P. S. Mitchell, G. L. Feinstein, G. C. Fisk, M. R. C. Heffernan, M. P. Carter, J. G. Ross, J. H. Fairley, P. D. P. McGrath, C. J. Good, I. E. Hughes, Victor Parsons, R. W. G. P. Best, J. B. L. Gee, J. A. Kay, G. A. Rose, Christian A. K. Carritt, Diana J. Collins, Rosaline M. Rewcastle; *C. E. Elliott, *N. R. Garden, *R. E. Gillson, *F. I. Caird, *J. I. McFeeters, *Priscilla A. Clark-Maxwell.

* In absentia.

Royal College of Physicians of London

At a comitia of the college held on July 30, with Sir Russell Brain, the president, in the chair, the following fellows were elected officers for the ensuing year:

Censors: K. E. Harris, F. P. L. Lander, J. R. H. Towers, T. C. Hunt. *Treasurer:* W. G. Barnard. *Registrar:* Sir Harold Boldero. *Harveian librarian:* E. C. Dodds. *Assistant registrar:* Alastair Hunter. *Library committee:* R. R. Trail, K. J. Franklin, T. F. Fox, Geoffrey Keynes. *Finance committee:* Denis J. Williams, W. N. Mann, A. D. C. Bell.

The following were elected examiners:

Chemistry: W. L. G. Gent, PH.D., George King, D.SC. *Physics:* H. F. Cook, PH.D., Joseph Rotblat, D.SC. *Materia medica and pharmacology:* W. N. Mann, C. J. Gavey, J. F. Dow, H. C. Stewart, J. M. Robson, R. S. Stacey. *Physiology:* R. J. S. McDowall, W. R. Spurrell. *Anatomy:* Frank Goldby. *Pathology:* L. P. Garrod, T. F. Hewer, J. W. Litchfield, L. C. Martin. *Medical anatomy and principles and practice of medicine:* W. G. Wyllie, A. C. Hampson, H. K. Goadby, G. L. S. Konstam, W. D. W. Brooks, S. J. Hartfall, R. R. Bomford, Kenneth Robson, A. Willcox, J. F. Stokes, William Phillips, A. D. C. Bell. *Midwifery and diseases peculiar to women:* Frank Cook, Andrew Claye, A. C. H. Bell, J. H. Peel, J. D. S. Flew. *Public health: Part I,* N. M. Goodman; *Part II,* Kenneth Soutar. *Tropical medicine: Clinical tropical medicine and medical Zoology,* Sir George McRobert; *Tropical hygiene,* R. F. Tredre. *Ophthalmology:* A. Seymour Philps, G. W. Black, Arthur Lister. *Psychological medicine: Part I,* Henry Wilson; *Part II,* Redvers Ironside, Alexander Kennedy. *Laryngology and otology:* C. P. Wilson. *Medical radiology: Part I,* J. E. Roberts, PH.D. *D.M.R.D.:* F. C. Golding. *D.M.R.T.:* Gwendolen Hilton. *Anæsthetics:* W. G. Oakley, Frankis Evans. *Child health:* Wilfrid Sheldon, Bernard Schlesinger, A. A. Moncrieff, Reginald Lightwood, F. M. B. Allen, Carlyle T. Potter, Jean Mackintosh. *Physical medicine: Part I,* K. O. Black, Gilbert Stead, D.SC.; *Part II,* H. A. Burt, F. S. Cooksey. *Industrial health:* Andrew Topping. *Pathology:* E. C. Dodds, G. Payling Wright. *Murchison scholarship:* C. G. Baker, Frances Gardner. *Panel of examiners for the membership examination:* George Ward, C. F. T. East, T. L. Hardy, J. H. Sheldon, J. Crichton Bramwell, A. H. Douthwaite, Donald Hunter, F. J. Nattrass, J. Forest Smith, L. B. Cole, J. L. Livingstone, M. E. Shaw, Ernest Lloyd, E. R. Cullinan, Sir Henry Cohen, J. St. C. Elkington, A. M. Cooke, E. R. Boland, Robert Coope, John Hawksley, J. G. Scadding, Horace Joules, F. Avery Jones.

The following lecturers were appointed:

Sir Charles Symonds (Harveian orator), Dr. F. H. K. Green (Bradshaw), Dr. D. M. Dunlop (Lumleian), Dr. A. W. Woodruff (Goulstonian), Dr. M. L. Rosenheim (Oliver-Sharpey), Dr. J. L. Livingstone (Mitchell), Dr. E. B. Verney (Bertram Louis Abrahams), and Dr. E. F. Scowen (Langdon-Brown) all for 1954; Sir Horace Evans (Croonian), Dr. C. E. Newman (FitzPatrick), and Dr. G. B. Dowling (Watson Smith) for 1955.

The Baly medal for 1953 was awarded to Dr. K. S. Lashley for his services to physiology and his work on the localisation of function in the brain; and the Bisset Hawkins medal to Dr. W. N. Pickles for his study, whilst in general practice at Aysgarth, of the epidemiology of a rural community.

The following having satisfied the censors' board, were admitted to the membership:

C. P. T. Alexander, M.B. Lond., Joan Angus, M.B. Glasg., B. H. Bass, M.D. Lond., lieutenant R.A.M.C., Martin Bodian, M.D. Vienna, B. A. Bradlow, M.D. (Witw'rsrand), D. G. Campbell, M.B. New Zealand, Harold Cohen, M.B. Sheff., D. G. Cottom, B.M. Oxfd., Silas Rofino Amu Dodu, M.B. Sheff., D. M. L. Doran, B.M. Oxfd., A. C. Fairburn, M.B. Lond., lieutenant, R.A.M.C., A. G. Freeman, M.D. Camb., A. S. Grimble, M.D. Lond., N. A. J. Hamer, M.B. Lond., Roy Hill, M.B. Brist., J. P. T. Jayawardena, M.B. Ceylon, I. A. Kellock, M.D. Lond., T. C. K. Marr, M.B. Camb., F. J. Meagher, M.B. Melbourne, Dennis Mendel, M.B. Lond., Ruth Revill, M.D. Toronto, J. R. Roberts, M.B. Lpool, Sylvia M. Saddington, M.B. Birm., M. H. Sheard, M.B. Manc., H. C. Smellie, M.B. Lond., J. D. Tange, M.B. Queensland, P. P. Turner, M.D. Lond.

Licences to practise were conferred upon 112 candidates who have passed the final examination of the Conjoint Board:

J. E. Ambrose, P. D. Arnold, P. J. Atkinson, Abel Agbaponwu Azie, Barbara E. G. Bapty, P. A. Barker, K. E. Barrett, N. L. Beisly, P. B. Biddell, C. E. S. Bill, E. D. Bird, Bernard Black, S. B. Boyle, Michael Bray, A. M. Brill, J. R. Brook, Jane Buchanan, Pamela M. Butcher, V. G. Calger, J. L. H. Capper, B. W. Cole, B. E. Cooke, Sidney Cooklin, A. G. Cope, I. D. Craig, H. R. Dickman, A. W. T. Eade, Helen W. East, B. I. F. Eminson, N. O. Eve, H. T. Fay, K. W. Giles, J. A. M. Goodwin, M. V. Gruchy, Jean L. Harney, J. A. Harrison, Pamela M. Harrison, B. D. Hick, Sheila M. Hindle, J. M. Hughes, D. S. Hutton, P. T. Jackson, Verna S. James, P. O. Jones, H. McP. Kidd, K. C. King, Margaret A. King-Davies, Solange M. M. Labesse, Pamela F. Lind-Smith, J. S. Lloyd, I. L. Loch, Gillian A. J. Lomax, D. B. Longmore, R. L. J. Lovick, G. P. Lowther, J. R. McNeill, D. I. Macpherson, Angela M. M. Manning, N. W. Marshall, G. F. Mayall, R. Ll. Meyrick, Audrey Millar, Evelyn J. Mitchell, J. B. Montgomery, W. K. C. Morgan, B. K. A. Muller, P. T. Nicholas, Sheila Nourse, R. E. Onwumere, Gerald Parkes, A. F. W. M. Pooler, A. T. Porritt, T. B. Priestley, Colin Protheroe, Margaret J. Purser, C. O. Quarcoopome, Priscilla A. Ridge, D. P. W. Roberts, G. S. Roberts, G. F. C. Rosser, Raymond Routledge, J. W. Scopes, H. G. Scott, F. E. Shaw, Eileen M. Shuttleworth, Mohindar Singh, G. F. Slocombe, F. E. Sparshott, Elizabeth J. Steele, G. R. Stevenson, E. L. Stout, R. J. Sturt, Colin Sumner, C. K. Sutcliffe, J. E. Taylor, S. H. Taylor, H. T. Thomas, A. D. Thursz, Naomi Turner, D. W. Warrell, Dorothy A. Wescott, J. T. Wheeler, Lawrence Wilkinson, C. A. Williams, Jennifer M. T. Williams, G. C. E. Wilson, P. M. Wine, J. R. Wood, N. W. Wood, S. M. Worrall, R. W. P. Yates, W. O. C. Young.

Diplomas were conferred on those named in the reports of meetings of the Royal College of Surgeons in our issues of June 20 (p. 1259) and July 18 (p. 148). The following diplomas were also conferred:

D.I.H.—Robert Bradley, G. R. Holtby, Henry Mowschenson, Robert Whitelaw.

D.O.—Imdad Ali, Doreen Birks, Frank Howard Budden, B. C. Dench, R. L. Douglas, S. M. Drancz, Salahiddin Fehmi El-Jarrah, O. O. F. Ffooks, Ann Garratt, Stanislaw Gebertt, G. L. Harper, Joan M. Hickley, T. K. Howat, Harold Jackson, R. F. Jones, T. G. Jones, W. J. Levy, Aileen B. MacClancy, R. J. McWilliam, Abdul Majid, Man Singh Nirankari, Prabhat Kumar Ray, A. T. Ryan, Sheikh Mohammad Sadiq, H. J. Scott, Winifred A. Sterndale-Bennett, Faye V. Tallack, R. E. Tingey, Sheena E. Tompkins.

D.Phys.Med.—J. B. Millard, J. E. F. Perera, A. C. Pinkerton.

D.P.H.—Amiya Ratan Basu, Jan Belej, S. G. Gordon, Louise M. E. Hogg, Dorothea Koffman, C. R. A. Martin, I. H. C. Morton, R. D. Pearce, J. D. Pickford, Eleanor M. Sawdon, Anup Kumar Sen, J. A. Slattery, W. R. Waldron, Waclaw Wollen.

Royal College of Surgeons of England

At a meeting of the council on July 30, with Sir Cecil Wakeley, the president, in the chair, Mr. A. McKie Reid was re-elected, and Mr. J. H. Doggart and Mr. R. J. Cann were elected members of the court of examiners. Mr. A. Hedley Whyte was elected examiner in surgery for the final F.R.A.C.S. examination. Dr. W. D. M. Paton was appointed professor of pharmacology. Dr. Joseph Bamforth was appointed research pathologist. Dr. George Crile, jun. (Cleveland Clinic, U.S.A.) was awarded a Moynihan lectureship. Mr. J. J. Jones was awarded the Handcock prize.

Diplomas of membership and postgraduate diplomas were granted to the candidates named above in the report of the comitia of the Royal College of Physicians.

CORRIGENDA: *Arterial Gas Embolism.*—In the article by Dr. Duff, Professor Greenfield, and Dr. Whelan on p. 230 of our last issue, the legend for fig. 5 should read:

Forearm blood-flows. Ordinate, blood-flow in ml./100 ml./min.; scale, 5 ml./100 ml./min. per division.

Resistant Tubercle Bacilli.—In our leading article last week the footnote referring to Beck and Yegian's work should read *Amer. Rev. Tuberc.* 1952, **66**, 44.

Prof. S. Zuckerman, F.R.S., has been appointed to the Scientific Advisory Council of the Minister of Fuel and Power.

1. Annual Report for 1952. London: H.M. Stationery Office. Pp. 9. 6d.

"Morning-sickness" can bring much discomfort and embarrassment to the pregnant patient, and although statistical evidence suggests that it develops in approximately one third of cases, it is often regarded by the mother-to-be as a normal — and even an inevitable — condition that has to be suffered during the first trimester.

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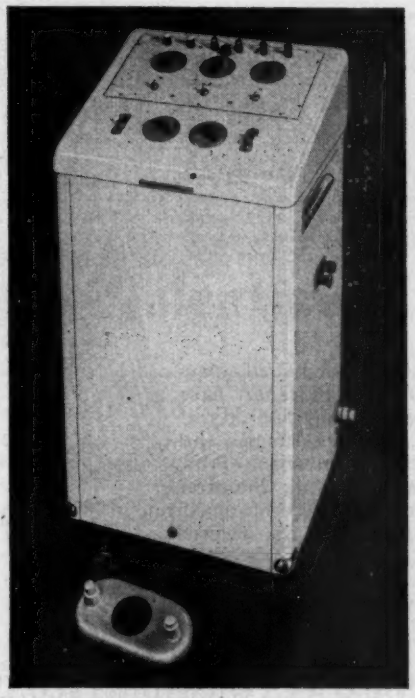

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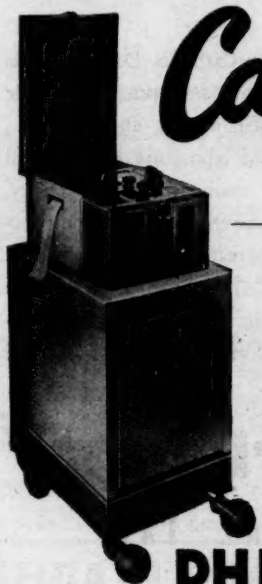

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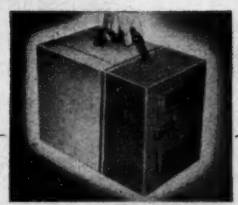

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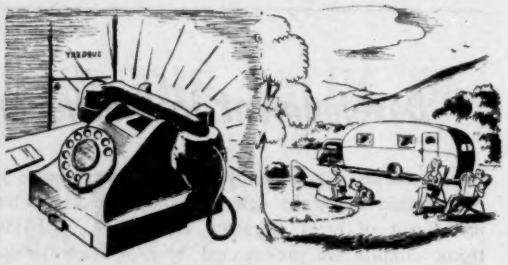

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ACADEMIC AND EDUCATIONAL SECTION *Page* 24

ANÆSTHETICS
Hosp. for Sick Child., W.C.1. Sr. H.O.'s 27
St. Giles', S.E.5. Sr. H.O. 27
St. James', S.W.12. Reg. 26
St. Nicholas, S.E.18. Sr. H.O. 26
Birmingham United Hosps. Sr. H.O. & Temp. Reg. 28
Bishop's Stortford. Haymeads. Reg. (Temp.) 28
Blackburn & Dist. H.M.C. Reg. .. 29
Bridgend Gen. Sr. H.O. 29
Brighton. Royal Sussex County. Sr. H.O. 29
Coventry & Warwickshire. Sr. H.O. 30
Dartford H.M.C. Sr. H.O. 30
Halifax Area H.M.C. Jr. H.M.O. .. 32
Harold Wood, Essex. Sr. H.O. .. 32
Ipswich. East Suffolk & Ipswich. Sr. H.O. 32
Leicester Royal Infy. Reg. 33
Manchester R.H.B. Reg. 33
Mansfield & Dist. Gen. Sr. H.O. .. 34
Newcastle United Hosps. Sr. Reg. .. 35
North Gloucestershire Clinical Area. Cons. 25
Plymouth. South Devon & East Cornwall. H.O. 36
Rochdale. Birch Hill. Sr. H.O. .. 36
Romford. Rush Green. Sr. H.O. .. 36
Sheffield R.H.B. Reg. 37
Stafford H.M.C. Sr. H.O. 38
Swansea. Sr. H.O.'s 38
Welsh R.H.B. Sr. H.M.O. 25
Wolverhampton H.M.C. H.O. .. 39
Worcester. Ronkswood. Sr. H.O. .. 39
Douglas. Noble's Isle of Man. H.O. 39
New Zealand. Otago Hosp. Board. Sr. Reg. & Asst. Lect. 39

CARDIOLOGY
National Heart, W.1. Sr. H.O. .. 26

CASUALTY
Battersea Gen., S.W.11. H.O. or Sr. H.O. 25
Evelina Child's., S.E.1. Locum H.O. 25
Miller Gen., S.E.10. Sr. H.O. .. 26
Paddington Green Child's., W.2. H.O. 26
Poplar, E.14. Sr. H.O. 26
St. George-in-the-East, E.1. Sr. H.O. 26
West London, W.6. Sr. H.O. .. 27
Birmingham United Hosps. Sr.H.O.'s 28
Birmingham. Selly Oak. Sr. H.O. .. 28
Cardiff. St. David's. Sr. H.O. .. 30
Carshalton. St. Helier. Sr. H.O. .. 30
Chelmsford & Essex. Sr. H.O. .. 30
Clacton & Dist. Sr. H.O. (Temp.) .. 30
Colchester. Essex County. Locum Sr. H.O., Sr. H.O. & H.O. 30
Doncaster Royal Infy. Sr. H.O. .. 31
Edgware Gen. Locum Reg. 31
Enfield. Chase Farm. Locum Sr. H.O. 31
Exeter. Royal Devon & Exeter. H.O. 31
Guildford. Royal Surrey County. Sr. H.O. 31
Hastings. Royal East Sussex. Sr. H.O. 32
Hertford County. H.O. or Locum H.O. 32
Liverpool United Hosps. H.O.'s .. 33
Maidstone. West Kent Gen. Sr. H.O. 34
Mansfield & Dist. Gen. Sr. H.O. .. 34
Newcastle R.H.B. Sr. Cas. O. .. 24
Newport. I.W. St. Mary's. Sr. H.O. 35
Newport, Mon. Royal Gwent. Jr. H.M.O. & Sr. H.O. 34
Plymouth. South Devon & East Cornwall. Sr. H.O. 36
Portsmouth Group H.M.C. Sr. H.O. 36
Romford. Oldchurch. Sr. H.O. .. 36
Ryde. I.W. Royal I.W. County. Sr. H.O. 36
Scunthorpe. War Mem. Sr. H.O. .. 37
Southampton. Royal South Hants. Sr. H.O. 37
Swansea. Morriston. Sr. H.O. .. 38
Warwick. Sr. H.O. 38
Wolverhampton H.M.C. H.O. .. 39

CHEST AND TUBERCULOSIS
Highlands, N.21. Sr. H.O. 25
London Chest, E.2. H.O.'s, Sr. H.O. or Reg., & P.-t. Reg. 26
Aylesbury. Royal Bucks & Assoc. Hosps. M.C. H.O. 27
Bath. Winsley Chest. Sr. H.O. .. 27
Bovey Tracey. Hawkmoor Chest. Jr. H.M.O. 27
Bradford Royal Infy. H.O. 29
Camborne. Tehidy. Resident. .. 30
Godalming. King George V. Reg. .. 32
Godalming. King George V. Sr. H.O. 32
Ilkley. Middleton-in-Wharfedale. Jr. H.M.O. 32
Isleworth. West Middx. H.O. .. 33
Manchester R.H.B. Regs. 33
Manchester. West Manchester H.M.C. Sr. H.O. 34
Rochdale & Dist. H.M.C. Jr. H.M.O. 36
Sheffield United Hosps. Sr. H.O. .. 37
South Lincolnshire Area. Reg. .. 37
South West Met. R.H.B. Locum Cons. or Sr. H.M.O. 25
Yorkshire. East Riding H.M.C. H.O. 39

DENTAL SURGERY
Hosp. for Sick Child., W.C.1. Sr. H.O. 27

EAR, NOSE, AND THROAT
Westminster, S.W.1. Sr. H.O. .. 27
Aylesbury. Royal Bucks & Assoc. Hosps. M.C. H.O. 27
Bedford Gen. H.O. 27
Bournemouth. Royal Vic. H.O. .. 28
Bradford. Royal Eye & Ear. H.O. .. 29
Dartford H.M.C. H.O. 30
Derby. Derbyshire Royal Infy. Reg. 30
Doncaster Royal Infy. Sr. H.O. .. 30
East Cumberland H.M.C. H.O. .. 31
Manchester R.H.B. Reg. 33
Manchester. West Manchester H.M.C. Pre-reg. H.O. 34
North & Mid-Cheshire H.M.C. Sr. H.O. & H.O. 34
North West Met. R.H.B. P.-t. Cons. 24
Portsmouth Group H.M.C. Sr. H.O. 36
Sheffield United Hosps. Sr. H.O. or H.O. 37
Swansea. Sr. H.O. 38
Warwickshire. S. Warwickshire Hosp. Group. Clin. Asst. (G.P.) 38
Welsh R.H.B. Reg. 39
Woking & Chertsey Group H.M.C. Reg. 39

GERIATRICS
Newcastle Gen. Sr. H.O. 35
Newcastle R.H.B. Sr. H.M.O. .. 25
Scotland. Eastern R.H.B. Cons. .. 25

INFECTIOUS DISEASES
Neasden, N.W.10. Locum Reg. .. 26
Cardiff Isolation. Sr. H.O. 30
Manchester. Monsall Hosp. for I.D. Sr. H.O. 34
Portsmouth Group H.M.C. H.O. .. 36
Northern Ireland Fever H.M.C. H.O.'s 39

MEDICINE
Battersea Gen., S.W.11. Locum H.O. 25
Hackney, E.9. H.O. 26
Princess Beatrice, S.W.5. H.O. .. 26
Whittington, N.19. Reg. 27
Birmingham. Dudley Road Infy. Jr. H.M.O.'s 28
Bishop's Stortford & Dist. H.O. .. 28
Boston Combined Hosps. Sr. H.O. .. 29
Bradford. St. Luke's. Locum Sr. H.O. 29
Broxburn. Bangour Gen. H.O. .. 30
Cardiff. Royal Hamadryad Gen. & Seamen's. Sr. H.O. 30
Coventry. Gulson. H.O. 30
Dartford H.M.C. H.O. 30
Dewsbury. Staincliffe Gen. H.O. .. 31
East Cumberland H.M.C. H.O. .. 31
Edgware Gen. H.O. 31
Exeter Clinical Area. Sr. Reg. .. 31
Hereford Gen. H.O. 32
Hounslow. Middx. H.O. 32
Huddersfield Royal Infy. H.O. .. 32
Ipswich Borough Gen. H.O. 33
Leamington. Warneford Gen. Prereg. H.O. 33
Leigh Infy. Lancs. H.O. 33
Lymington, Hants. Sr. H.O. 33
Manchester. Ancoats. Sr. H.O. .. 34
Manchester United Hosps. Reg. .. 34
Mitcham Junction. Wandle Valley. Locum Sr. H.O. & Sr. H.O. .. 34
Newmarket Gen. H.O. 35
North & Mid-Cheshire H.M.C. Sr. H.O. 34
Nuneaton. Manor. H.O. 36
Peterborough Mem. Reg. 36
Plymouth. South Devon & East Cornwall. H.O. 36
Portsmouth Group H.M.C. H.O. .. 36
Romford. Vic. H.O. 36
Scotland. Northern R.H.B. Reg. .. 37
Sherborne. Yeatman. H.O. 37
Southampton Group H.M.C. H.O. .. 37

Page

Stoke-on-Trent. North Staffs Royal Infy. Pre-reg. H.O. 37
Stoke-on-Trent. City Gen. H.O. .. 38
Swansea. Mount Pleasant. Jr. H.M.O. 38

NEUROLOGY

Birmingham United Hosps. Sr. H.O. or H.O. 28

NEUROSURGERY

Guy's-Maudsley Neurosurgical Unit. Reg. & Sr. H.O. 25
Regional Neurosurgical Centre, S.E.18. Sr. H.O. 26
Bristol. Cossham/Frenchay H.M.C. Sr. H.O. 29
Sheffield United Hosps. Sr. Reg., Reg. & Sr. H.O. 37

OBSTETRICS AND GYNÆCOLOGY

Hosp. of St. John & St. Elizabeth, N.W.8. H.O. 26
Mothers', E.5. Sr. H.O. & H.O.'s .. 26
Princess Beatrice, S.W.5. H.O. .. 26
South London Hosp. for Women, S.W.4. H.O. 27
St. Nicholas, S.E.18. H.O. 26
St. Stephen's, S.W.10. Pre-reg. H.O. 26
Bedford Gen. Sr. H.O. 27
Birmingham. Lordswood Maternity. H.O. 28
Birmingham United Hosps. Reg. .. 28
Birmingham United Hosps. H.O.'s .. 28
Chertsey. St. Peter's. Sr. H.O. .. 30
Colchester Group H.M.C. H.O. .. 30
Dorking Gen. Sr. H.O. 31
Edgware Gen. & Bushey Maternity. Reg. 31
Exeter. Royal Devon & Exeter. H.O. 31
Grimsby Gen. Sr. H.O. 31
Grimsby Group of Hosps. Reg. .. 32
Grimsby Maternity. Sr. H.O. .. 32
Hillingdon, Middx. H.O. 32
Hull. Kingston Gen. H.O. 32
Ilford Maternity. Sr. H.O. 32
Leamington. Warneford Gen. H.O. 33
Lennoxtown. Lennox Castle Maternity. Sr. H.O. 33
Newcastle R.H.B. Reg. 35
Newcastle R.H.B. Sr. H.M.O. .. 25
Plymouth. South Devon & East Cornwall. H.O. 36
Shrewsbury. Royal Salop. Infy. & Copthorne. H.O. 37
St. Albans City. Reg. 38
Winchester. Royal Hants County. H.O. 39
Windsor. King Edward VII. H.O.'s 38

OPHTHALMOLOGY

South West Met. R.H.B. P.-t. Locum Cons. or Sr. H.M.O. 25
Bolton & Dist. H.M.C. Sr. H.O. .. 28
Bradford. Royal Eye & Ear. H.O.'s .. 29
Maidstone. Kent County Ophthalmic & Aural. Sr. H.O. 34
Manchester United Hosps. Reg. .. 34
Manchester United Hosps. Sr. H.O.'s 34
Newcastle United Hosps. Reg. .. 35
Newcastle upon Tyne H.M.C. Sr. H.O. 35
Romford. Oldchurch. Sr. H.O. .. 36
Wolverhampton H.M.C. H.O. .. 39

ORTHOPÆDICS

Albert Dock Orthopædic and Traumatic, E.16. Sr. H.O. 25
Hammersmith, W.12. H.O. 25
Hosp. for Sick Child., W.C.1. Sr. H.O. 27
Royal Nat. Orthopædic, W.1. Sr. Regs. & Regs. 26
Royal Northern, N.7. Sr. H.O. .. 26
Aylesbury. Royal Bucks & Assoc. Hosps. M.C. Sr. H.O.'s 27
Bournemouth. Royal Vic. Sr. H.O. 29
Bradford. St. Luke's. Sr. H.O. & H.O. 29
Braintree. Black Notley. H.O., Locum Sr. H.O. & Sr. H.O. 29
Chertsey. St. Peter's. Sr. H.O. .. 30
Dartford H.M.C. H.O. 30
East Cumberland H.M.C. H.O. .. 31
Gloucester. Gloucestershire Royal. Sr. H.O. 31
Ipswich. East Suffolk & Ipswich. H.O. & Sr. H.O. 33
Liverpool United Hosps. H.O.'s .. 33
Manchester R.H.B. Sr. Regs. .. 34
Newcastle Gen. Sr. H.O. 35
North West Met. R.H.B. Cons. .. 24
Norwich. Norfolk & Norwich. Sr. H.O. & Reg. 35
Nottingham Gen. Reg. & Sr. H.O. .. 35
Sheffield R.H.B. Sr. Reg. 37
Sheffield R.H.B. Locum Reg. .. 37
Shrewsbury. Royal Salop Infy. Sr. H.O. 37

Page

Southampton. Royal S. Hants. Sr. H.O. & H.O. 37
Swansea. Sr. H.O. 38
Truro. Royal Cornwall Infy. Sr. H.O.'s 38
Whitehaven. Cumberland. H.O. or Sr. H.O. 38
Wigan. Royal Albert Edward Infy. Sr. H.O. 38
Winchester. Royal Hants County. Sr. H.O. 39
Wolverhampton H.M.C. Sr. H.O. or H.O. 39
Yorkshire. East Riding H.M.C. Sr. H.O. 39

PÆDIATRICS

Hosp. for Sick Child., W.C.1. Sr. H.O. 27
Queen Elizabeth Hosp. for Child. Sr. H.O. 26
Westminster Hosp. Teaching Group. Reg. 27
Ashton, Hyde & Glossop H.M.C. Sr. H.O. 27
Blackburn & Dist. H.M.C. Sr. H.O. 29
Bradford. Children's. H.O. 29
Bradford. St. Luke's. H.O. 29
Hemel Hempstead. West Herts. H.O. 32
Hereford Gen. H.O. 32
Liverpool United Hosps. P.-t. M.O. (G.P.) 33
Newcastle Gen. Sr. H.O. 35
Warrington Gen. Sr. H.O. 38
Warwick. H.O. 38

PATHOLOGY

Aylesbury. Royal Bucks & Assoc. Hosps. M.C. Sr. H.O. 27
Bolton & Dist. H.M.C. Sr. H.O. .. 28
Bury & Rossendale H.M.C. Sr. H.O. 29
Doncaster Royal Infy. Reg. .. 31
East Anglian R.H.B. Sr. H.M.O. .. 24
Leeds R.H.B. Sr. H.M.O. 24
Nottingham Gen. Sr. H.O. 35
Romford. Oldchurch. Sr. H.O. .. 36
Truro. Royal Cornwall Infy. Sr. H.O. 38

PHYSICAL MEDICINE

Edgware Gen. Locum Reg. or Jr. H.M.O. 31

PLASTIC SURGERY

Ayrshire, Ballochmyle. Jr. H.M.O. 27
Bristol. Cossham/Frenchay H.M.C. H.O. 29
Norwich. West Norwich. Reg. .. 35

PSYCHIATRY

West London, W.6. P.-t. Clin. Assts. 27
Brentwood. Warley. Sr. H.O. .. 29
Bristol Mental. Sr. H.O. 29
Bromsgrove. Barnsley Hall. Jr. H.M.O. 30
East Anglian R.H.B. Cons. 24
Manchester R.H.B. Sr. Reg. .. 34
Preston. Whittingham. Reg. .. 36
Sheffield R.H.B. Sr. Regs. 37
Warwick. Central Mental. Sr. H.O. 38

RADIOLOGY

Birmingham United Hosps. Cons. .. 24
Ipswich. East Suffolk & Ipswich. Reg. 32
Manchester United Hosps. Reg. .. 34
Sheffield R.H.B. Locum Sr. H.M.O. or Cons. 25

RADIOTHERAPY

Marie Curie, N.W.3. H.O. 26
Royal Cancer, S.W.3. Reg. 26
Manchester R.H.B. Cons. 24
Sheffield R.H.B. Locum Sr. H.M.O. 25

SURGERY

Bethnal Green, E.2. H.O. 25
Dulwich, S.E.22. H.O. 25
East Ham Mem. E.7. H.O. 25
Elizabeth Garrett Anderson, N.W.1. H.O. 25
Hosp. for Sick Child., W.C.1. P.-t. Sr. Reg. 27
Hosp. of St. John & St. Elizabeth, N.W.8. H.O. 25
Lambeth, S.E.11. H.O.'s 26
St. Stephen's, S.W.10. H.O. 27
Alton. Lord Mayor Treloar H.M.C. Locum Jr. H.M.O. or Reg. .. 27
Ashton, Hyde & Glossop H.M.C. H.O. 27
Barrow-in-Furness. North Lonsdale. Sr. H.O. & H.O. 27
Barry Accident & Surgical. H.O. or Sr. H.O. 27
Bexhill. Sussex. H.O.'s 28
Birmingham Accident. H.O.'s .. 28
Birmingham United Hosps. Reg. .. 28
Bishop Auckland Gen. Sr. H.O. or H.O. 28
Bishop's Stortford. Haymeads. H.O. 28
Bolton & Dist. H.M.C. H.O. .. 28
Bradford. St. Luke's. H.O.'s .. 29

Page

Braintree. Black Notley & Essex County. H.O. 29
Brighton Gen. H.O. 29
Bristol. Cossham Mem. Sr. H.O. & H.O. 29
Bury & Rossendale H.M.C. Sr. H.O. & Pre-reg. H.O. 29
Carshalton. St. Helier. H.O.'s. .. 30
Chelmsford H.M.C. Locum Sr. H.M.O. 24
Darlington Mem. Sr. H.O. & H.O. .. 30
Dartford H.M.C. H.O. 30
Dewsbury. Staincliffe Gen. H.O. .. 31
Dewsbury. Staincliffe Gen. Sr. H.O. 31
Dorking Gen. Sr. H.O. or Locum .. 31
Dover. Royal Vic. H.O. 31
Dovercourt. Harwich & Dist. Reg. (Temp.) 31
East Cumberland H.M.C. H.O. .. 31
Enfield. Chase Farm. H.O. 31
Epping. St. Margaret's. Sr. H.O. .. 31
Farnborough, Kent. H.O. 31
Glasgow. Vic. Infy. Sr. H.O. .. 31
Hastings. St. Helens. Pre-reg. H.O. 32
Haverfordwest. Pembroke County War Mem. H.O. 32
Hemel Hempstead. West Herts. H.O. 32
Hitchin. Herts. H.O. 32
Huddersfield Royal Infy. H.O. .. 32
Hull. Kingston Gen. H.O. 32
Hull Royal Infy. Sr. H.O. 32
Isle of Thanet H.M.C. Sr. H.O.'s .. 33
Leamington. Warneford Gen. H.O. 33
Liverpool. Mossley Hill. Reg. .. 33
Llanelly. Sr. H.O. 33
Louth. County Infy. Sr. H.O. or Pre-reg. H.O. 33
Lowestoft & North Suffolk. Sr. H.O. 33
Lymington. Hants. Sr. H.O. .. 33
Maidstone. West Kent Gen. Sr. H.O. 34
Manchester R.H.B. Sr. Regs. .. 34
Manchester. West Manchester H.M.C. Sr. H.O. 34
Mansfield & Dist. Gen. Pre-reg. H.O. or Sr. H.O. 34
Newcastle Gen. Sr. H.O. 35
Newcastle R.H.B. Locum Reg. .. 35
Newmarket Gen. H.O. 35
Newport, I.W. St. Mary's. Sr. H.O. & H.O. 35
North & Mid-Cheshire H.M.C. Sr. H.O. 34
Nottingham City. Sr. H.O. 35
Nuneaton. Manor. Pre-reg. H.O. .. 35
Oldham. Boundary Park Gen. H.O. 36
Oldham Royal Infy. H.O. 36
Penzance. West Cornwall. H.O. .. 36
Plymouth. South Devon & East Cornwall. Sr. H.O.'s & H.O.'s .. 36
Pontypool & Dist. Jr. H.M.O. .. 36
Portsmouth Group H.M.C. H.O. .. 36
Redhill. East Surrey. Sr. H.O. .. 36
Redruth. Camborne-Redruth. Sr. H.O. 37
Romford. Oldchurch. H.O. 36
Romford. Rush Green. Sr. H.O. .. 36
Scunthorpe. War Mem. Sr. H.O. .. 37
Sheffield R.H.B. P.-t. Cons. 25
Shrewsbury. Royal Salop Infy. H.O. 37
Southampton Gen. H.O. 37
Stafford. Staffordshire Gen. Infy. H.O. 38
Stockport. Stepping Hill. Sr. H.O. 38
Stoke-on-Trent. City Gen. Sr. H.O. & Pre-reg. H.O.'s 37/38
Stratford-on-Avon. Locum Sr. H.O. 38
Swansea. Morriston. Sr. H.O. .. 38
Taplow. Canadian Red Cross Mem. H.O. 38
Warrington Infy. H.O. 38
Weston-super-Mare Gen. H.O. .. 39
Wigan. Royal Albert Edward Infy. H.O. 39
Worcester. Ronkswood. Sr. H.O. .. 39
Yorkshire. East Riding H.M.C. H.O. 39
Channel Islands, Jersey. Gen. Surgical Officer 39
Douglas. Noble's Isle of Man. H.O. 39

GENERAL

Canada. Women's College Hosp. Registrarship 39
New York. New Rochelle. Internes 39

PUBLIC APPOINTMENTS 39

GENERAL PRACTICE 40

NON-MEDICAL 40

MISCELLANEOUS 40

The Terms and Conditions of Service of Hospital Medical and Dental Staff apply to all N.H.S. hospital posts we advertise, unless otherwise stated. Canvassing disqualifies, but candidates may normally visit the hospital by appointment.

Academic and Educational

EXAMINING BOARD IN ENGLAND

by the
ROYAL COLLEGE OF PHYSICIANS OF LONDON
and the
ROYAL COLLEGE OF SURGEONS OF ENGLAND

Notice is hereby given that the following Examinations will commence on the dates stated below :—

DIPLOMA IN CHILD HEALTH
9th September
DIPLOMA IN MEDICAL RADIOTHERAPY
8th October
DIPLOMA IN MEDICAL RADIODIAGNOSIS
Part II.—15th October

Applications and fees for either or both Parts of an Examination must reach the Secretary, Examination Hall, Queen-square, London, W.C.1, at least 21 days before Part I of the Examination begins. FRANCIS M. STENT, Secretary.

UNIVERSITY OF ABERDEEN

Applications are invited for the McROBERT RESEARCH FELLOWSHIP. Candidates will be required to undertake research relating to any disease that is generally regarded as malignant or incurable in any 1 of the following fields selected by the candidate and approved by the University : bacteriology, biology, chemistry, chemotherapy, clinical science, endocrinology, pathology, or physics. The stipend will be £900 p.a. with F.S.S.U. and children's allowances.

Conditions of appointment and forms of application should be obtained from the undersigned, with whom applications (8 copies) should be lodged by 30th September, 1953.

The University, Aberdeen. W. S. ANGUS, Secretary.

BRADFORD EDUCATION COMMITTEE

TECHNICAL COLLEGE, BRADFORD

MEDICAL RESEARCH SCHOLARSHIP

The Bradford Education Committee and the Bradford Group A Hospital Management Committee jointly, have provided a Scholarship of the value of £300 p.a., in the first instance for 1 year, for fundamental research on the structure of the human intervertebral disc.

Applications are invited for this Scholarship from graduates in physics, in chemistry, or in physiology, and should be sent to the Principal, Technical College, Bradford. Previous research experience is not necessary. Further details may be obtained on application.

L.M.S.S.A.

FINAL EXAMINATION : SURGERY, 12th October, 9th November, 7th December, 1953. MEDICINE, PATHOLOGY, 19th October, 16th November, 14th December, 1953. MIDWIFERY, 20th October, 17th November, 15th December, 1953. MASTERY OF MIDWIFERY, May and November. DIPLOMA IN INDUSTRIAL HEALTH, July and December.

For regulations apply REGISTRAR, Apothecaries' Hall, Black Friars-lane, London, E.C.4.

THE UNIVERSITY OF MANCHESTER. Applications are invited, from candidates with medical qualifications registrable in this country, for the post of ASSISTANT LECTURER or DEMONSTRATOR IN PATHOLOGY. Previous experience in pathology is not essential. Duties will consist of teaching and of participation in the Morbid Anatomy Service of Manchester Royal Infirmary. Opportunities will be available for research. Salary of Assistant Lecturer on a scale £700–£1000 p.a., with membership of F.S.S.U. and Children's Allowance Scheme : initial salary according to qualifications and experience. Salary of Demonstrator £700 p.a. with membership of Children's Allowance Scheme.

Applications, giving details of experience, with names of 2 referees, should be sent not later than 25th August, 1953, to the Registrar, the University, Manchester, 13, from whom further particulars and forms of application may be obtained.

UNIVERSITY OF EDINBURGH. Applications are invited for the post of LECTURER IN BACTERIOLOGY. The successful candidate will be expected to take up duty on 1st October, 1953, or as soon thereafter as possible. Salary scale £600–£100–£1000 p.a., with superannuation benefit and family allowance where applicable.

Further particulars may be obtained from the undersigned, with whom applications, giving the names of 3 referees, should be lodged not later than 5th September, 1953.

CHARLES H. STEWART, Secretary to the University.
July, 1953.

UNIVERSITY OF EDINBURGH. Applications are invited for the post of RESEARCH ASSISTANT in the Department of Cardiology, The Royal Infirmary, Edinburgh. Salary £800 p.a., rising to £1000 p.a., with Superannuation under F.S.S.U. The appointment will be for 1 year in the first instance with the possibility of renewal. Experience in pathology and an aptitude in the employment of experimental methods is desirable. The successful candidate will be expected to take up duty on 1st October, 1953, or as soon thereafter as possible.

Further particulars may be obtained from the undersigned, with whom applications, giving details of qualifications and experience, and the names of 3 referees, should be lodged not later than 5th September, 1953.

CHARLES H. STEWART, Secretary to the University.
July, 1953.

Hospital Services : Senior Appointments

CHELMSFORD HOSPITAL MANAGEMENT COMMITTEE. Full-time Locum Tenens SENIOR HOSPITAL MEDICAL OFFICER (surgery) required for approximately 2 months from 24th August. Resident.

Applications to Secretary, Hospital Management Committee, London-road, Chelmsford.

BIRMINGHAM. THE UNITED BIRMINGHAM HOSPITALS. Applications are invited for the appointment of CONSULTANT RADIOLOGIST, on the basis of full-time or maximum part-time service. The appointment will be made under S.I.(1950)1259, and will be held on the terms and conditions of service of hospital medical and dental staffs (England and Wales). The Officer appointed may be required, by arrangement, to undertake postgraduate studies in other approved centres either in this country or abroad, for which purpose a Fellowship will be available which will include travelling expenses and subsistence allowance and a basic salary.

Applications, giving the names of 3 referees, must be submitted on a special form to be obtained from the undersigned. Canvassing of members of the Board of Governors or of the Advisory Appointments Committee will lead to disqualification. Closing date 29th August, 1953.

G. A. PHALP, Secretary and Principal Administrative Officer,
United Birmingham Hospitals.

EAST ANGLIAN REGIONAL HOSPITAL BOARD. ASSISTANT PATHOLOGIST (whole-time) to hospitals in the West Suffolk Hospital Management Committee Area. Duties mainly at major laboratory at West Suffolk General Hospital, Bury St. Edmunds. Higher qualifications and wide experience essential. Salary scale £1300–£1750.

Applications (8 copies), stating age, qualifications, and details of present and previous appointments, together with names of 3 referees, to Secretary of Board, 117, Chesterton-road, Cambridge, by 24th August, 1953. Candidates invited to visit Laboratory by direct arrangement with Hospital Management Committee Secretary, 36, Mill-road, Bury St. Edmunds.

EAST ANGLIAN REGIONAL HOSPITAL BOARD. CONSULTANT PSYCHIATRIST (whole-time), Ipswich Mental Hospital Group—St. Clement's Hospital, Ipswich (400 Beds), and St. Audry's Hospital, Melton, near Woodbridge (900 Beds), and associated General Hospital outpatient clinics. Duties will be predominantly at St. Clement's and the outpatient clinics.

Applications (8 copies), stating age, qualifications, and details of present and previous appointments, together with names of 3 referees, to Secretary of Board, 117, Chesterton-road, Cambridge, by 17th August, 1953. Candidates invited to visit hospitals by direct arrangement with Medical Superintendent, St. Audry's Hospital.

LEEDS REGIONAL HOSPITAL BOARD invites applications from suitably qualified practitioners for the whole-time non-resident post of ASSISTANT PATHOLOGIST (Senior Hospital Medical Officer scale) for duties at hospitals in the Halifax Group. The successful candidate will work under the general guidance of the Consultant in charge of the Department and will be required to reside in Halifax or within such distance of that town as the Board may approve.

Applications (10 copies), stating age, qualifications, and details of present and previous appointments with dates, together with the names of 3 referees, should be forwarded to the Secretary, Park-parade, Harrogate, not later than 21st August, 1953.

MANCHESTER REGIONAL HOSPITAL BOARD invite applications for the whole-time non-resident post of CONSULTANT RADIOTHERAPIST, Christie Hospital and Holt Radium Institute, Manchester. F.F.R. and a higher qualification in medicine or surgery will be additional advantages.

Application forms from the Senior Administrative Medical Officer to the Board at Cheetwood-road, Manchester, 8, to be returned by 17th August, 1953.

NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. E.N.T. SURGEON (Consultant) required for 5 half-days a week at West Middlesex Hospital, Isleworth, Middlesex (1147 Beds with all the usual special departments). Duties will include occasional visits to St. Bernard's Hospital, Southall. Hospital may be visited by direct appointment.

Detailed applications, giving date of birth, and names of 3 referees, to Secretary, North West Metropolitan Regional Hospital Board, 11A, Portland-place, W.1, by 12th September, 1953.

NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. ASSISTANT ORTHOPÆDIC AND ACCIDENT SURGEON (Consultant status) required at Luton and Dunstable Hospital, where there is a well-developed Accident Service covering much of Bedfordshire and including Hitchin. The Hospital has 250 Beds, including 50 for orthopædic and accident cases. Post will be whole-time but 5 years from date of taking up duty the holder will be given free choice of transferring to maximum sessions if he so desires. Hospital may be visited by direct appointment.

Detailed applications, including date of birth, and names of 3 referees, to Secretary, North West Metropolitan Regional Hospital Board, 11A, Portland-place, W.1, by 5th September, 1953.

NEWCASTLE REGIONAL HOSPITAL BOARD. TEESSIDE HOSPITAL MANAGEMENT COMMITTEE GROUP (population 350,000). MIDDLESBROUGH GENERAL HOSPITAL (300 Beds). SENIOR CASUALTY OFFICER (whole-time) within the range £1300–£50–£1750. Duration of tenure of post not exceeding 4 years. The Senior Casualty Officer will be required, subject to the supervision of the Senior Surgeon to General Surgical Clinic No. 2 and the Senior Orthopædic Surgeon, to organise the work of the large casualty department which is the main Casualty Department for Tees-side. Adaptation of an existing building has provided a very good casualty department and the appointment offers excellent experience in such work. The Senior Casualty Officer must reside near the Middlesbrough General Hospital. Further particulars may be obtained from the Senior Surgeon, General Surgical Clinic No. 2, at the General Hospital, Ayresome Green-lane, Middlesbrough.

Applications, together with names and addresses of referees (preferably), or testimonials, to a total of 3, to be sent to the Senior Administrative Medical Officer, "Blythswood South," Osborne-road, Newcastle upon Tyne, 2, within 28 days.

NEWCASTLE REGIONAL HOSPITAL BOARD. TEESSIDE HOSPITAL MANAGEMENT COMMITTEE GROUP. Main hospitals: Middlesbrough General (300 Beds); Hemlington Hospital (300 Beds); Stockton and Thornaby Hospital (120 Beds); Portrack Lodge Hospital (160 Beds). ASSISTANT PHYSICIAN, whole-time, or part-time for a minimum of 9 notional half-days per week, for the geriatric services. Salary scale £1300–£1750 whole-time, pro rata part-time. The Assistant Physician will be required to reside near Portrack Lodge Hospital and Stockton and Thornaby Hospital. Further particulars may be obtained from the Senior Consultant Physician in charge of the Geriatric Services, Middlesbrough General Hospital, and arrangements to see over the hospitals should be made with him.

Applications, together with names and addresses of referees (preferably), or testimonials to a total of 3, to be sent to the Senior Administrative Medical Officer, "Blythswood South," Osborne-road, Newcastle upon Tyne, 2, within 28 days.

NEWCASTLE REGIONAL HOSPITAL BOARD. SPECIAL AREA COMMITTEE FOR CUMBERLAND AND NORTH WESTMORLAND. OBSTETRICIAN (Senior Hospital Medical Officer grade), for East Cumberland Group of hospitals. Main hospitals: Cumberland Infirmary, Carlisle (340 Beds); City General Hospital, Carlisle (146 Beds); City Maternity Hospital, Carlisle (57 Beds). Further particulars may be obtained from the Senior Consultant Obstetrician and Gynæcologist, City Maternity Hospital, Carlisle.

Applications, together with names and addresses of 1–3 referees, to be sent to the Senior Administrative Medical Officer, 1, Lonsdale-street, Carlisle, within 28 days.

NORTH GLOUCESTERSHIRE CLINICAL AREA. SOUTH-WESTERN REGIONAL HOSPITAL BOARD. Applications are invited from registered medical practitioners for the appointment of CONSULTANT ANÆSTHETIST to the North Gloucestershire Clinical Area which comprises Gloucester, Cheltenham, Stroud, Forest of Dean, and adjoining districts. The appointment will be held on a maximal (9 sessions) part-time basis. The successful candidate will be required to work mainly at the Gloucestershire Royal Hospital, Gloucester, and at Stroud General Hospital but will be required to visit other hospitals in the Clinical Area as may be determined by the Regional Board from time to time. He will be expected to live convenient to Gloucester and Stroud.

Applications (12 copies), stating date of birth, qualifications and experience, together with 12 copies of 2 testimonials, and the names and addresses of 2 referees, should be sent to the Secretary of the Regional Hospital Board, 27, Tyndalls Park-road, Bristol, 8, not later than 29th August, 1953.

SCOTLAND. EASTERN REGIONAL HOSPITAL BOARD. GERIATRICS AND GENERAL MEDICINE. PERTHSHIRE AREA. Applications are invited from suitably qualified and experienced Physicians holding a higher medical qualification for the whole-time appointment of PHYSICIAN (Consultant) in Geriatrics for the Perthshire Area. The person appointed will have independent clinical charge of Assessment and Rehabilitation Units in the area. The work of the Geriatric Service is expected to occupy approximately two thirds of the time of the Physician and he will devote the remainder of his time to work in general medicine at Bridge of Earn Hospital, near Perth. Salary £1700 (at age 32)–£2750.

Forms of application and further particulars from the Secretary to the Board, "Braeknowe," 430, Blackness-road, Dundee, with whom applications must be lodged not later than 15th September, 1953.

SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time Locum RADIOLOGIST required at Mansfield and District General Hospital for period 7th–24th September, 1953. Remuneration 31½ or 45 guineas per week according to status.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, naming 2 referees.

SHEFFIELD REGIONAL HOSPITAL BOARD. CONSULTANT SURGEON required for 8 notional half-days per week. Duties at Beckett Hospital, Barnsley, and City General Hospital, Sheffield.

Application forms obtainable from Senior Administrative Medical Officer, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield. Forms to be returned by 29th August, 1953.

SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time Locum ASSISTANT RADIOTHERAPIST required immediately at the Derbyshire Royal Infirmary for a period of approximately 4–6 months. Remuneration at the rate of 31½ guineas per week.

Apply to the Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, naming 2 referees.

WELSH REGIONAL HOSPITAL BOARD. Applications are invited for the appointment of an ASSISTANT ANÆSTHETIST (Senior Hospital Medical Officer scale) to serve the Mid-Glamorgan Hospital Management Committee. The successful candidate will be based at Neath General Hospital and will also be expected to serve other hospitals within the Group. Possession of the D.A. will be an advantage. The successful candidate will work under the Consultant-in-charge.

Applications (12 copies), stating date of birth, giving a summary of qualifications, experience, previous appointments with dates, and publications, together with the names of 3 referees, should be addressed to the Senior Administrative Medical Officer, Welsh Regional Hospital Board, Cathays Park, Cardiff, within 21 days of appearance of this advertisement.

SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD requires Locum CHEST PHYSICIAN (whole-time) in the Bournemouth and Poole areas from 7th September to 31st December, 1953. Main duties at Poole Chest Clinic and Parkstone Sanatorium, and also, as required, in the Bournemouth area. Remuneration 45 guineas per week (if holding National Health Service Consultant grading) or 31½ guineas per week.

Applications, naming 2 referees, to Secretary, South West Metropolitan Regional Hospital Board, 11A, Portland-place, W.1, by 20th August, 1953.

SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD requires Locum OPHTHALMOLOGIST (5 half-days per week) for the Isle of Wight Group from 24th August to 13th September. Remuneration 5 guineas per half-day (if holding National Health Service Consultant grading) or 3½ guineas per half-day.

Apply immediately to Dr. J. REVANS.
Beeston House, Water-lane, Winchester.

Hospital Services: Junior Appointments

ALBERT DOCK ORTHOPÆDIC AND TRAUMATIC HOSPITAL, Alnwick-road, E.16. SENIOR HOUSE SURGEON (resident) required immediately. Salary £670 p.a., with authorised deductions. Appointment recognised by the Royal College of Surgeons.

Applications, stating age, qualifications, and experience, with the names of 3 referees, to the undersigned as soon as possible and in any case not later than 27th August.

F. A. LYON, Secretary.
Dreadnought Seamen's Hospital, Greenwich, S.E.10.

BATTERSEA GENERAL HOSPITAL, Battersea Park, S.W.11. Locum HOUSE PHYSICIAN, 16th–22nd August.

Apply Hospital Secretary. BAT: 0134.

BATTERSEA GENERAL HOSPITAL, Battersea Park, S.W.11. CASUALTY OFFICER/HOUSE SURGEON (resident). House Officer or Senior House Officer grade according to experience. Vacant early August.

Apply, enclosing copies of 2 recent testimonials, to Hospital Secretary (L).

BETHNAL GREEN HOSPITAL, Cambridge Heath-road, London, E.2. (General—313 Beds.) Applications are invited from registered medical practitioners for the post of HOUSE SURGEON. The appointment is for 6 months and the salary £350, £400, or £450 according to experience, less residential charges. The Hospital is recognised for the final F.R.C.S. (Eng.).

Applications, stating age, nationality, qualifications, and experience, with copies of 2 recent testimonials, to the Hospital Secretary without delay.

DULWICH HOSPITAL, East Dulwich-grove, London, S.E.22. CAMBERWELL HOSPITALS MANAGEMENT COMMITTEE. Applications invited for appointment as HOUSE OFFICER (surgical duties), vacant from 9th September, 1953. Recognised pre-registration post. Salary, £350, £400, or £450 a year according to posts held, less £100 a year for residence.

Applications, stating age, details of qualifications and previous posts, enclosing copy testimonials to the Group Secretary, Camberwell Hospitals Management Committee, Dulwich Hospital, East Dulwich-grove, S.E.22.

EAST HAM MEMORIAL HOSPITAL, Shrewsbury-road, London, E.7. Applications are invited for the appointment of HOUSE SURGEON (House Officer, first or second post), Male or Female, for 6 months commencing 20th September, 1953. This post is recognised for the F.R.C.S.

Applications, stating age and experience, together with copies of testimonials, should be sent to the Group Secretary, West Ham Group Hospital Management Committee, London, E.15, not later than 1st September.

ELIZABETH GARRETT ANDERSON HOSPITAL, Euston-road, N.W.1. (ROYAL FREE HOSPITAL GROUP.) Applications are invited from pre-registration and registered Women medical practitioners for the post of SECOND HOUSE SURGEON/CASUALTY OFFICER, with duties in Gynæcological and Special Departments. Appointment for 6 months from 1st October, 1953. Salary according to Ministry of Health scale for House Officers.

Applications, with copies of 3 recent testimonials, should be sent to the Secretary, Elizabeth Garrett Anderson Hospital, by 13th August, 1953.

EVELINA CHILDREN'S HOSPITAL OF GUY'S HOS-PITAL, Southwark Bridge-road, London, S.E.1. Locum RESIDENT CASUALTY OFFICER (House Officer grade) from 17th August, to 31st October, 1953.

Applications to Hospital Secretary immediately.

GUY'S-MAUDSLEY NEUROSURGICAL UNIT. Applications are invited for the post of REGISTRAR for 1 year, commencing 1st October.

Applications, giving the names of 2 referees, should be made to K. J. JOHNSON, House Governor and Secretary, Maudsley Hospital, Denmark-hill, S.E.5, by 29th August.

GUY'S-MAUDSLEY NEUROSURGICAL UNIT. Applications are invited for the post of SENIOR HOUSE OFFICER for 6 months commencing 1st September next. The Unit, which is housed in the Maudsley Hospital, serves Guy's Hospital, the Bethlem Royal Hospital, and the Maudsley Hospital.

Applications, giving details of experience, and the names of 2 referees, should be made to—

K. J. JOHNSON, House Governor and Secretary.
Maudsley Hospital, Denmark-hill, S.E.5.

HAMMERSMITH HOSPITAL AND POSTGRADUATE MEDICAL SCHOOL, London, W.12. HOUSE SURGEON (orthopædics) required immediately.

Applications, stating age, qualifications, experience, copies of 2 recent testimonials to Secretary, Board of Governors.

HIGHLANDS HOSPITAL, Winchmore Hill, N.21. (General Hospital—818 Beds.) SENIOR HOUSE OFFICER (resident) for T.B. Unit (100 Beds). Vacant 1st September, 1953.

Applications, with copies of 3 testimonials, to Hospital Secretary.

HOSPITAL OF ST. JOHN AND ST. ELIZABETH, 60, Grove End-road, N.W.8. Applications are invited from registered medical practitioners (Male) for the appointment of HOUSE SURGEON, to become vacant on Monday, 7th September, 1953. Appointment will be for a period of 6 months. Salary is at the rate of £350 p.a.

Applications should reach the Secretary on or before 29th August, 1953, together with copies of 3 recent testimonials.

HOSPITAL OF ST. JOHN AND ST. ELIZABETH, 60, Grove End-road, N.W.8. Applications are invited from registered medical practitioners (Male) for the appointment of HOUSE SURGEON to the Midwifery and Gynæcology Departments and to be responsible for the Casualty Department, to become vacant on Monday, 28th September, 1953. Appointment will be for a period of 6 months. Salary is at the rate of £350 p.a.

Applications should reach the Secretary on or before 29th August, 1953, together with copies of 3 recent testimonials.

HACKNEY HOSPITAL, London, E.9. (General—811 Beds.) Applications are invited for the 6 months appointment of HOUSE PHYSICIAN, vacant on 8th September, and should be sent to the Group Secretary, Hackney Hospital Management Committee, E.9, by 17th August, quoting reference HH/HP.

LAMBETH HOSPITAL, Brook-drive, S.E.11. Applications are invited from pre-registration and registered medical practitioners for the positions (2) of RESIDENT HOUSE SURGEON. The appointments are for 6 months, commencing on 11th August, 1953, and are recognised for the F.R.C.S.

Application forms may be obtained from the Physician-Superintendent at the Hospital.

LONDON CHEST HOSPITAL. Hospitals for Diseases OF THE CHEST. 2 vacancies occur 1st October, 1953, for RESIDENT HOUSE PHYSICIAN. Appointments for 6 months, 4 in London, 2 at the Country Branch, near Letchworth, and posts are graded as House Officer. Duties include work in the Outpatient Department and Refill Clinic as well as in wards.

Applications, stating age, qualifications with dates, and previous appointments held, with copies of 3 testimonials, should reach the undersigned not later than 21st August.

THOMAS BROWN, House Governor.

London Chest Hospital, E.2.

LONDON CHEST HOSPITAL. Hospitals for Diseases OF THE CHEST. A vacancy occurs 1st October, 1953, for RESIDENT SURGICAL OFFICER. Appointment for 6 months, with prospect of renewal, of which 2 will be at the Country Branch, near Letchworth. Post graded as Senior House Officer or Registrar, according to qualifications and experience. Previous surgical experience necessary.

Applications, stating age, qualifications with dates, and previous appointments held, with copies of 3 testimonials, should reach the undersigned not later than 21st August.

THOMAS BROWN, House Governor.

London Chest Hospital, E.2.

LONDON CHEST HOSPITAL. Hospitals for Diseases OF THE CHEST. Applications are invited for the appointment of Part-time MEDICAL REGISTRAR (grading: Senior Registrar). The duties require the equivalent of 5 notional half-days a week, including 1 Refill Clinic. The appointment is for 1 year and is renewable.

Applications, stating age, qualifications with dates, and previous appointments held, and accompanied by copies of 3 testimonials, should reach the undersigned not later than 21st August. THOMAS BROWN, House Governor.

London Chest Hospital, E.2.

MARIE CURIE HOSPITAL, 66, Fitzjohn's-avenue, Hampstead, N.W.3. Applications are invited from registered medical practitioners for the post of GYNÆCOLOGICAL HOUSE SURGEON (radiotherapy). Vacant immediately.

Application with copies of testimonials to the Medical Director.

MILLER GENERAL HOSPITAL. (180 Beds.) Recognised for the F.R.C.S. examination. SENIOR HOUSE OFFICER (Casualty Department), vacant 31st August, 1953, 6 months appointment (renewable). Previous House Officer experience essential. Salary £670 p.a., less deduction of £52 p.a. for meals taken whilst on duty.

Applications and testimonials, to Group Secretary, Greenwich and Deptford Hospital Management Committee, St. Alfege's Hospital, Greenwich, S.E.10.

MOTHERS' HOSPITAL (Salvation Army), Clapton, E.5. (Maternity—110 Beds.) Applications are invited for the 12 months appointment, as from 1st October, of a SENIOR HOUSE OFFICER (obstetrics). The post is resident (a charge of £130 p.a. being made) and is recognised for the M.R.C.O.G.

Apply to Secretary, Hackney Hospital Management Committee, London, E.9, by 15th August, quoting MH/SHO/O.

MOTHERS' HOSPITAL (Salvation Army), Clapton, E.5. (Maternity—110 Beds.) Applications are invited from registered medical practitioners for appointment as RESIDENT HOUSE SURGEON (obstetrics), House Officer, second or third post. 2 appointments vacant 1st September for 6 months; posts recognised for M.R.C.O.G.

Apply to Secretary, Hackney Hospital Management Committee, London, E.9, by 15th August, quoting MH/HO.

NATIONAL HEART HOSPITAL, Westmoreland-street, London, W.1. (With which is associated the Institute of Cardiology.) Applications are invited for the post of ASSISTANT RESIDENT MEDICAL OFFICER (Male). The appointment is for a period of 6 months from 1st October, 1953. The status of the post is that of a Senior House Officer and the salary is £670 p.a., in accordance with the terms and conditions of service of hospital medical staff.

Applications, with copies of 3 recent testimonials, should be sent to me not later than Monday, 31st August, 1953.

ROBERT G. E. WHITNEY, Secretary to the Board.

NEASDEN HOSPITAL, Brentfield-road, N.W.10. Locum RESIDENT MEDICAL OFFICER required (for acute infectious diseases) for periods 28th September–2nd October and 12th–23rd October inclusive. Registrar grade. Whole-time duties.

Applications, with copies of 2 testimonials, to Physician-Superintendent.

PRINCESS BEATRICE HOSPITAL, Earls Court, S.W.5. HOUSE SURGEON (obstetrics and casualty). (Registered Practitioner.) 6 months appointment from 1st September.

Applications, with 3 testimonials, to the House Governor by 21st August.

PRINCESS BEATRICE HOSPITAL, Earl's Court, S.W.5. HOUSE PHYSICIAN (some casualty work), registered practitioner, 6 months appointment from 1st September, preceded by 1 weeks Locum from 24th August.

Applications, with 3 testimonials, to the House Governor by 14th August.

PADDINGTON GREEN CHILDREN'S HOSPITAL, W.2. (ST. MARY'S HOSPITAL.) Applications are invited for the post of CASUALTY OFFICER (third post). Non-resident appointment, House Officer grade, tenable for 6 months, as from 1st October, 1953.

Applications, stating age, nationality, qualifications with dates, and experience, with copies of 3 recent testimonials, should reach the Secretary not later than 15th August, 1953.

POPLAR HOSPITAL, East India Dock-road, E.14. Bow GROUP HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER required at above Hospital. Duties are mainly in connection with the Receiving-room and Casualty Departments. Preference will be given to a candidate who is preparing for a higher qualification. Post vacant on 1st September, 1953.

Applications to Hospital Secretary at Poplar Hospital.

QUEEN ELIZABETH HOSPITAL FOR CHILDREN MANAGEMENT COMMITTEE, Hackney-road, E.2, Shadwell, E.1, and BANSTEAD WOOD, SURREY. RESIDENT MEDICAL OFFICER (Male or Female), graded Senior House Officer, at Banstead Wood. Applications are invited for the above appointment to become vacant 1st November, 1953. Candidates must have had experience in the treatment of sick children. The appointment will be for 1 year. Salary £670 p.a., subject to a charge of £100 p.a. for residential emoluments.

Application forms may be obtained from the Secretary at Hackney-road and should be returned, with copies of not more than 3 testimonials, not later than 24th August, 1953.

ROYAL CANCER HOSPITAL, Fulham-road, London, S.W.3. Applications are invited for the post of Full-time REGISTRAR in the Radiotherapy Department to commence duty as soon as possible. Candidates should hold a Diploma in Medical Radiology.

Forms of application are obtainable from the House Governor to whom applications, together with copies of 3 recent testimonials, should be sent not later than 24th August, 1953.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, 234, Great Portland-street, W.1. Applications are invited for the appointments of 3 SENIOR ORTHOPÆDIC REGISTRARS (full-time, non-resident). Applicants must be Fellows of 1 of the Royal Colleges of Surgeons. 2 to commence duties 1st November and 1 on 1st December, 1953.

Applications to be received not later than 3rd September. Form of application can be obtained from the House Governor at 234, Great Portland-street, London, W.1.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, 234, Great Portland-street, London, W.1. Applications are invited for the appointments of 2 or 3 ORTHOPÆDIC REGISTRARS (full-time, non-resident). Duties to commence 1st November, 1953. Applications to be received not later than 3rd September. Preference will be given to candidates with a higher surgical qualification.

Form of application can be obtained from the House Governor at 234, Great Portland-street, London, W.1.

ROYAL NORTHERN HOSPITAL, Holloway, London, N.7. Applications are invited for the post of SENIOR HOUSE OFFICER (orthopædics) vacant 24th August, 1953. Occasional casualty duties involved.

Applications, stating age, qualifications, and experience, with copies of recent testimonials, to be sent to the Hospital Secretary

REGIONAL NEUROSURGICAL CENTRE. (50 Beds.) BROOK GENERAL HOSPITAL, Shooters Hill-road, S.E.18. SENIOR HOUSE OFFICER (neurosurgery), vacant 16th September. The post, which is recognised for F.R.C.S., also provides excellent opportunity for training in neurology. Salary £670 p.a., less £150 p.a. for residence.

Apply to Group Secretary, Memorial Hospital, Woolwich, S.E.18.

ST. GEORGE-IN-THE-EAST HOSPITAL, Raine-street, Wapping, E.1. Applications are invited for the post of CASUALTY OFFICER (resident or non-resident), Senior House Officer (9 A.M.–5 P.M. Monday–Friday, 9 A.M.–1 P.M. Saturday). Post vacant 10th September, 1953. Salary £670 p.a. less, if resident, £156 p.a. Tenable for 1 year.

Application forms obtainable from, and returnable to, the Medical Superintendent.

ST. JAMES' HOSPITAL, Ouseley-road, Balham, S.W.12. SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. WANDSWORTH HOSPITAL GROUP. REGISTRAR (anæsthetics) required. Post vacant 1st October.

Application forms (send stamped addressed foolscap envelope), obtainable from the Group Secretary, 14, Atkins-road, Balham, S.W.12, to be completed and returned by 20th August.

ST. NICHOLAS HOSPITAL, Plumstead, S.E.18. House SURGEON (gynæcology and obstetrics), vacant now. Application is being made for recognition for M.R.C.O.G.

Apply to Group Secretary, Memorial Hospital, Woolwich, S.E.18.

ST. NICHOLAS HOSPITAL, Tewson-road, Plumstead, S.E.18. SENIOR HOUSE OFFICER (anæsthetics), vacant October. 6 months appointment and may then be renewed. Recognised for D.A. Salary £670 p.a., less £150 p.a. for residence.

Apply to Group Secretary, Memorial Hospital, Woolwich, S.E.18.

ST. STEPHEN'S HOSPITAL, Fulham-road, Chelsea, S.W.10. HOUSE SURGEON (obstetrics and gynæcology), resident, pre-registration. (Not suitable for first appointment.) Vacancy early September. Post recognised for D.Obst.R.C.O.G. but not for M.R.C.O.G.

Apply, naming 2 referees, to Medical Superintendent.

ST. STEPHEN'S HOSPITAL, Fulham-road, Chelsea, S.W.10. HOUSE SURGEON (general surgery), resident, vacancy mid-August, 1953. If no suitable pre-registration candidates, post-registration ones considered.

Applications, naming 2 referees, to Medical Superintendent immediately.

ST. GILES' HOSPITAL, Camberwell, London, S.E.5. CAMBERWELL HOSPITALS MANAGEMENT COMMITTEE. Applications invited for appointment as SENIOR HOUSE OFFICER (anæsthetic duties). Resident appointment for duties in the Camberwell Group of hospitals. Vacant from 10th August.

Applications, stating age, qualifications and experience, enclosing copy testimonials, to the Secretary, Camberwell Hospital Management Committee, Dulwich Hospital, East Dulwich-grove, S.E.22.

SOUTH LONDON HOSPITAL FOR WOMEN, Clapham Common, S.W.4. Applications are invited from pre-registration and registered Female medical practitioners for the appointment of OBSTETRIC HOUSE SURGEON to become vacant on 21st September, 1953. Post recognised for the M.R.C.O.G. Appointment is for a period of 6 months.

For forms of application apply to the Secretary at the Hospital.

THE HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.1. There will be vacancies on 15th November, 1953, for the following Senior House Officers :—

HOUSE PHYSICIAN.

HOUSE SURGEON to the Orthopædic and Plastic Departments.

Further particulars and form of application, which must be returned not later than 7th September, 1953, are obtainable from the undersigned.

H. F. RUTHERFORD, House Governor and Secretary.

THE HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.1. There is a vacancy for a Part-time SURGICAL REGISTRAR, attending 1 session per week. The appointment is graded as that of a Senior Registrar.

Full particulars and form of application, which must be returned not later than Monday, 7th September, 1953, are obtainable from the undersigned.

H. F. RUTHERFORD, House Governor and Secretary.

THE HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.1. There will be 1 vacancy on 1st November, 1953, and another on 21st November, 1953, for a JUNIOR RESIDENT ANÆSTHETIST (Senior House Officer).

Full particulars, with form of application, which must be returned not later than Monday, 7th September, 1953, may be obtained from the undersigned.

H. F. RUTHERFORD, House Governor and Secretary.

THE HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.1. There will be a vacancy on 18th November, 1953, for a RESIDENT DENTAL HOUSE SURGEON (Senior House Officer). Salary £670 p.a. The post is recognised for the Fellowship in Dental Surgery, Royal College of Surgeons. Experience is given in both oral surgery and orthodontics.

Further particulars and form of application, which must be returned not later than 7th September, 1953, may be obtained from the undersigned.

H. F. RUTHERFORD, House Governor and Secretary.

WEST LONDON HOSPITAL, Hammersmith-road, London, W.6. Applications invited for the following posts in the Psychiatric Department :—

CLINICAL ASSISTANT, 4 sessions per week (all day Monday, Wednesday mornings, Friday mornings). Applicants must have experience of electro-cerebral therapy. Salary £175 p.a. per session.

CLINICAL ASSISTANT, 2 sessions per week. Salary £175 p.a. per session.

Applications, stating age, qualifications, experience, copies of 2 recent testimonials, to Secretary by 22nd August.

WEST LONDON HOSPITAL, Hammersmith-road, W.6. CASUALTY OFFICER (resident or non-resident) required 1st October. Salary £670 p.a.

Applications, stating age, qualifications, experience, copies of 2 recent testimonials, to Secretary, by 22nd August.

WESTMINSTER HOSPITAL, St. John's-gardens, S.W.1. Applications invited for post of SENIOR HOUSE OFFICER to E.N.T. Department starting 1st September. Appointment for 1 year.

Applications (6 copies), with names of 2 referees, to House Governor as soon as possible.

WESTMINSTER HOSPITAL TEACHING GROUP. West-MINSTER CHILDREN'S HOSPITAL. Applications invited for post of NON-RESIDENT MEDICAL REGISTRAR from 1st October, 1953. Salary £775 p.a.

Apply by letter (6 copies), stating age, qualifications and experience, with names of 3 referees, to Secretary, Westminster Children's Hospital, Vincent-square, S.W.1, by 6th September.

WHITTINGTON HOSPITAL, N.19. North West Metro-POLITAN REGIONAL HOSPITAL BOARD. MEDICAL REGISTRAR (general medicine) required at above Hospital. Unit contains 92 Beds. Hospital may be visited by direct appointment.

Application forms obtainable from, and returnable to, the Secretary, Archway Group Hospital Management Committee, 46, Cholmeley-park, N.6, by 17th August, 1953.

BATH (near). WINSLEY CHEST HOSPITAL. (135 Beds.) Applications are invited from registered medical practitioners for the post of RESIDENT HOUSE PHYSICIAN (Senior House Officer grade) at above Hospital which overlooks the Limpley Stoke Valley about 7 miles from Bath and is served by a regular bus service.

Applications, stating age, qualifications, and experience, with 3 recent testimonials, should be forwarded to—

J. LAWRENCE MEARS, Secretary,
Bath Hospital Management Committee.
Manor Hospital, Bath.

ASHTON, HYDE AND GLOSSOP HOSPITAL MANAGE-MENT COMMITTEE. Applications are invited for the following posts at Ashton-under-Lyne General Hospital (800 Beds) :—

(i) SENIOR HOUSE OFFICER (pædiatrics), vacant September.

(ii) HOUSE SURGEON, vacant now. Preference will be given to pre-registration applicants.

Applications should be forwarded to the Group Secretary, Astley-road, Stalybridge, Cheshire, by 20th August, 1953.

AYLESBURY. ROYAL BUCKINGHAMSHIRE AND ASSOCIATED HOSPITALS MANAGEMENT COMMITTEE. Applications are invited for the following appointments :—

Royal Buckinghamshire Hospital

SENIOR HOUSE OFFICER to Accident and Orthopædic Department, vacant now. Duties include charge of Casualty Department, together with those of Senior Resident. Salary £670 p.a., less £140 p.a. for residence, &c.

SENIOR HOUSE OFFICER for Accident and Orthopædic Department (which is centred upon this Hospital and comprises 48 Beds), vacant now.

Applications for the above appointments, with 2 testimonials, to Secretary-Superintendent as soon as possible.

Stoke Mandeville Hospital

SENIOR HOUSE OFFICER (pathology) for a busy and expanding laboratory situated at the above Hospital, in which all branches of clinical pathology for over 1000 Beds are undertaken. Salary £670 p.a. Single accommodation is available at a charge of £140 p.a.

Applications with copies of 2 testimonials to the Administrative Officer as soon as possible.

Tindal General Hospital

HOUSE SURGEON (E.N.T.), Male or Female, vacant now. New department with high turnover and 4 Outpatient Clinics weekly. No casualty department. Recognised for F.R.C.S. and D.L.O. Applications for locum appointment will be considered.

HOUSE PHYSICIAN (Chest Unit), second or third post, Male or Female, vacant 1st September. Duties include care of about 20 chest cases (including T.B. Chalets) which may increase in due course, and 4 clinics weekly, including refills, forming a progressive chest unit for the Aylesbury area. Instruction in bronchoscopy and bronchography given. An acute Geriatric Unit, a small long-stay Annexe and a medical Outpatient Clinic provide some general medicine. No casualty department.

Both posts are recognised for Pre-registration Service, but registered practitioners are invited to apply.

Applications, with 2 testimonials, to the Administrative Officer as soon as possible.

ALTON, HANTS. LORD MAYOR TRELOAR HOS-PITAL MANAGEMENT COMMITTEE. Locum JUNIOR HOSPITAL MEDICAL OFFICER or REGISTRAR required. Salary £16 per week—at Morland Clinics, Alton, Hants. 120 Beds for general surgical and orthopædic cases. 8th August (or as soon as possible thereafter)–19th September.

Apply Surgeon-Superintendent, Morland Clinics.

AYRSHIRE. BALLOCHMYLE HOSPITAL, Mauchline. (346 Beds.) JUNIOR HOSPITAL MEDICAL OFFICER (plastic surgery and maxillo-facial unit). New appointment. Resident. National terms. Offers a wide variety of experience in all aspects of plastic surgery, oral surgery and the treatment of burns.

Apply immediately to Area Medical Superintendent, Ballochmyle Hospital, Mauchline, giving the names of 2 referees.

BARRY ACCIDENT AND SURGICAL HOSPITAL. CARDIFF HOSPITAL MANAGEMENT COMMITTEE. HOUSE OFFICER (but may be Senior House Officer if sufficient experience) required immediately at above Hospital. Staffed by whole-time Consultant Surgeon and Surgical Registrar. Excellent experience given in general surgery.

Form of application from Group Secretary, 44, Cathedral-road, Cardiff.

BARROW-IN-FURNESS. NORTH LONSDALE HOS-PITAL. BARROW AND FURNESS HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for resident posts of SENIOR HOUSE SURGEON and HOUSE SURGEON (recognised for pre-registration) at the above Hospital, with surgical work under control of Consultant Surgeons. Posts recognised for F.R.C.S. National conditions and salary scales.

Applications to the Secretary of the Committee, 52, Paradise-street, Barrow-in-Furness.

BEDFORD GENERAL HOSPITAL. (435 Beds.) Bedford GROUP HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER (Male or Female) in Obstetrics and Gynæcology, required to be resident at the Bedford General Hospital (North Wing). The Unit comprises 59 obstetric and 20 gynæcological beds and a busy Outpatient Department, offering excellent experience. Post vacant 20th September, 1953, and recognised for the D.Obst.R.C.O.G. Salary £670 p.a., less £130 for emoluments.

Application forms obtainable from, and returnable to, Group Secretary, Bedford Group Hospital Management Committee, 3, Kimbolton-road, Bedford, by 19th August, 1953.

BEDFORD GENERAL HOSPITAL. (435 Beds.) Bedford GROUP HOSPITAL MANAGEMENT COMMITTEE. RESIDENT HOUSE SURGEON required immediately. This is a new appointment for duties principally in the E.N.T. and Ophthalmic Departments.

Applications, stating age, nationality, qualifications, previous appointments, together with copies of 2 testimonials, should be forwarded to the Group Secretary, 3, Kimbolton-road, Bedford.

BOVEY TRACEY (near), SOUTH DEVON. HAWKMOOR CHEST HOSPITAL. (214 Beds, including Thoracic Surgical Unit of 40 Beds, 16 being for non-tuberculous cases.) There will shortly be a vacancy for a JUNIOR HOSPITAL MEDICAL OFFICER.

Applications, stating age, qualifications and experience, with names of referees or copies of testimonials, to be addressed to the Medical Superintendent.

BEXHILL-ON-SEA. BEXHILL HOSPITAL. (62 Beds.) 2 HOUSE SURGEONS. Posts now vacant. (A small modern hospital on the South coast.) Considerable acute surgical work and busy Outpatient Department. Excellent all-round experience. National scale of salary.

Apply to Hospital Administrator.

BIRMINGHAM ACCIDENT HOSPITAL AND REHABILITATION CENTRE, Bath-row, BIRMINGHAM, 15. HOUSE SURGEONS (Male or Female), 2 posts vacant early September. Recognised F.R.C.S. The appointments will be for a period of 6 months of which 2 may be spent in the Burns Unit (Medical Research Council). The Hospital is the largest Traumatic Unit in the country and treats 50,000 new patients each year. The posts offer ample opportunity for practical experience in the management of all types of injury and teaching by the Consultant staff.

Applications, with copies of recent testimonials or names of 2 referees, to the Administrator.

BIRMINGHAM, 18. DUDLEY ROAD INFIRMARY, Western-road. JUNIOR HOSPITAL MEDICAL OFFICERS required. The Hospital has 1000 Beds for the care of the chronic sick and an active Geriatric Unit. Salary £700–£1000 p.a.

Applications, with copies of 3 recent testimonials, to Secretary, Hospital Management Committee, Dudley Road Hospital, Birmingham, 18.

BIRMINGHAM. LORDSWOOD MATERNITY HOSPITAL, Lordswood-road, HARBORNE, BIRMINGHAM, 17. Applications are invited for the post of RESIDENT OBSTETRIC HOUSE OFFICER. The appointment is for a period of 6 months commencing 1st September, 1953. The Hospital has 33 Beds dealing with normal and abnormal midwifery. Appointment recognised for D.Obst.R.C.O.G. Second period Training School for Pupil Midwives.

Applications to be addressed to the Obstetrician.

BIRMINGHAM, 29. SELLY OAK HOSPITAL. (1059 Beds.) Applications are invited for the post of CASUALTY OFFICER (Senior House Officer), resident or non-resident. Available immediately.

Apply, giving qualifications, experience and age, with copies of 3 testimonials, to the Medical Superintendent.

BIRMINGHAM. THE UNITED BIRMINGHAM HOSPITALS. THE BIRMINGHAM AND MIDLAND HOSPITAL FOR WOMEN, Showell Green-lane, SPARKHILL, BIRMINGHAM, 11. Applications are invited from registered practitioners for the post of RESIDENT GYNÆCOLOGICAL HOUSE SURGEON for duty with the Professorial Unit, vacant 1st October, 1953. The appointment is recognised for the M.R.C.O.G.

Application forms obtainable from the House Governor at the above address, to be returned not later than 4th September, 1953. G. A. PHALP, Secretary.

BIRMINGHAM. THE UNITED BIRMINGHAM HOSPITALS. THE BIRMINGHAM MATERNITY HOSPITAL. RESIDENT OBSTETRIC HOUSE SURGEON required for duty 1st November, 1953. The appointment is recognised as a pre-registration post for the purposes of the Medical Act, 1950, and is recognised for the M.R.C.O.G.

Application forms obtainable from the House Governor, The Birmingham and Midland Hospital for Women, Showell Green-lane, Sparkhill, Birmingham, 11, to be returned not later than 4th September, 1953. G. A. PHALP, Secretary.

BIRMINGHAM. THE UNITED BIRMINGHAM HOSPITALS. THE CHILDREN'S HOSPITAL, Ladywood-road, BIRMINGHAM, 16. SENIOR HOUSE OFFICER (casualty) required to commence duty on 1st October, 1953. Previous surgical experience essential.

Forms of application may be obtained from the House Governor, and should be returned not later than 22nd August, 1953. G. A. PHALP, Secretary to the Board of Governors.

BIRMINGHAM. THE UNITED BIRMINGHAM HOSPITALS. Applications are invited for the temporary appointment of RESIDENT REGISTRAR in Anæsthetics (Registrar grade). The appointment is a temporary one for a period of 6 months, from 1st October, 1953. The successful candidate will be resident at the Queen Elizabeth Hospital but will be required to undertake duties at other hospitals within the Teaching Group. Preference will be given to candidates who have passed the Part I examination for the Diploma in Anæsthetics.

Application forms may be obtained from the Secretary, United Birmingham Hospitals, Queen Elizabeth Hospital, Birmingham, 15, and should be returned to him not later than 22nd August, 1953.

BIRMINGHAM. THE UNITED BIRMINGHAM HOSPITALS. Applications are invited for the post of RESIDENT ANÆSTHETIST (Senior House Officer grade), for duties within the Teaching Group, and resident at the Queen Elizabeth Hospital. Vacant 1st October and tenable for 1 year. The appointment is a recognised post for the purpose of taking the F.F.A.R.C.S. examination.

Application forms may be obtained from the Secretary, United Birmingham Hospitals, Queen Elizabeth Hospital, Birmingham, 15, and should be returned to him not later than 22nd August, 1953.

BIRMINGHAM. THE UNITED BIRMINGHAM HOSPITALS. THE QUEEN ELIZABETH HOSPITAL. Applications are invited for the post of RESIDENT SURGICAL REGISTRAR (Registrar grade) for duty in the above Hospital. The post is vacant 1st October, 1953, and is tenable for 1 year in the first instance. Candidates must be registered medical practitioners, and have held a resident appointment. Salary in accordance with the terms and conditions of service of hospital medical and dental staffs.

Forms of application may be obtained from, and should be returned not later than 29th August, 1953, to, the Secretary, United Birmingham Hospitals, Queen Elizabeth Hospital, Edgbaston, Birmingham, 15.

BIRMINGHAM. THE UNITED BIRMINGHAM HOSPITALS. THE QUEEN ELIZABETH HOSPITAL. Applications are invited for the post of RESIDENT OBSTETRIC AND GYNÆCOLOGICAL REGISTRAR, for duties at the Queen Elizabeth Hospital (Professorial Unit) to commence 1st October, 1953.

Forms of application with details of appointment, may be obtained from, and should be returned not later than 22nd August, 1953, to, the Secretary, United Birmingham Hospitals, Queen Elizabeth Hospital, Birmingham, 15.

BIRMINGHAM. THE UNITED BIRMINGHAM HOSPITALS. GENERAL HOSPITAL. Applications are invited for the post of NON-RESIDENT SENIOR HOUSE OFFICER for duty in the Casualty Department at the above Hospital. The post is vacant 1st October, 1953, and is tenable for 1 year in the first instance. Candidates must be registered medical practitioners, and have held a resident appointment. Salary in accordance with the terms and conditions of service of hospital medical and dental staffs.

Forms of application may be obtained from, and should be returned not later than 29th August, 1953, to, the Secretary, United Birmingham Hospital, Queen Elizabeth Hospital, Edgbaston, Birmingham, 15.

BIRMINGHAM. THE UNITED BIRMINGHAM HOSPITALS. THE MIDLAND NERVE HOSPITAL. There is a vacancy for a HOUSE OFFICER in the grade of Senior House Officer or House Officer at the Midland Nerve Hospital. Duties will be both neurological (25 Beds) and psychiatric (15 Beds) with corresponding Outpatient Departments. The Hospital is recognised for training for the D.P.M.

Application forms may be obtained from the Secretary, United Birmingham Hospitals, Queen Elizabeth Hospital, Birmingham, 15, and should be returned to him at once.

BISHOP'S STORTFORD, HERTS. HAYMEADS HOSPITAL. (400 occupied beds. Midway between London and Cambridge. Main Line Railway from Liverpool Street.) Applications are invited from registered medical practitioners for the appointment of a Whole-time Temporary REGISTRAR (anæsthetics) at the above Hospital. Appointment to commence as soon as possible for approximately 6-month period. Salary at rate of £775–£890 p.a., less £130 p.a. residential emoluments.

Applications, giving fullest details, together with copies of recent testimonials or the names of referees, to the Hospital Secretary.

BISHOP'S STORTFORD, HERTS. HAYMEADS HOSPITAL. (400 occupied beds. Midway between London and Cambridge. Main Line Railway from Liverpool Street.) Applications are invited from registered medical practitioners for a RESIDENT HOUSE OFFICER (surgical), first or second post held. Salary £350–£400 p.a., less £100 p.a. for residential emoluments. Appointment to commence as soon as possible.

Applications, stating age, nationality, qualifications and experience, with copies of recent testimonials or the names of referees, should be sent, as soon as possible, to the Hospital Secretary.

BISHOP'S STORTFORD AND DISTRICT HOSPITAL, Rye-street, BISHOP'S STORTFORD, HERTS. (67 Beds—medical, surgical, and maternity. Midway between London and Cambridge. Main Line Railway from Liverpool Street.) Applications are invited from registered medical practitioners for a RESIDENT HOUSE OFFICER (first or second post held). Salary £350–£400 p.a., less £100 p.a. for residential emoluments Appointment to commence as soon as possible.

Applications, stating age, nationality, qualifications and experience, with copies of recent testimonials or the names of referees, should be sent to the Hospital Secretary, Haymeads Hospital, Bishop's Stortford, Herts.

BISHOP AUCKLAND GENERAL HOSPITAL. (350 Beds.) Applications are invited from registered practitioners or pre-registration students for the post of HOUSE SURGEON/CASUALTY OFFICER (Senior House Officer or House Officer grade). Salary—Senior House Officer grade £670 p.a., less £130 p.a. for full residential emoluments; House Officer grade £350–£450 p.a. according to previous experience, less £100 p.a. for full residential emoluments.

Applications, stating age, nationality, qualifications, experience, and the names of 2 referees, to be sent to the undersigned as soon as possible.

K. G. T. LUXFORD, Secretary/Finance Officer,
South West Durham Hospital Management Committee.

BOLTON AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE.

The Royal Infirmary, Bolton (237 Beds)

SENIOR HOUSE OFFICER in Ophthalmology, vacant immediately, tenable for 12 months.

RESIDENT HOUSE SURGEON for general surgical duties. Vacant immediately, tenable for 6 months and recognised under the Pre-registration Service scheme.

Group Laboratories

RESIDENT PATHOLOGIST (Senior House Officer grade), vacant immediately, tenable for 12 months and recognised for the Dip. Path.

Applications, stating age, nationality, qualifications, experience, and the names of 2 referees, should be sent immediately to H. P. TRAVIS, Group Secretary.

The Royal Infirmary, Bolton.

BOURNEMOUTH, HANTS. ROYAL VICTORIA HOSPITAL, WESTBOURNE. BOURNEMOUTH AND EAST DORSET HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the appointment of HOUSE SURGEON for E.N.T. and ophthalmic duties. In addition to the duties at the above Hospital, the successful candidate will be required to assist in E.N.T. outpatient clinics at Royal Victoria Hospital, Bournemouth, and Poole General Hospital.

Applications to the Deputy Hospital Secretary, Royal Victoria Hospital, Shelley-road, Bournemouth.

BOURNEMOUTH. ROYAL VICTORIA HOSPITAL. (492 Beds.) BOURNEMOUTH AND EAST DORSET HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the immediate appointment of RESIDENT SENIOR HOUSE OFFICER (orthopædic and casualty combined). The post is recognised for the F.R.C.S. examination and is tenable for 1 year.

Applications to the Deputy Hospital Secretary.

BOSTON COMBINED HOSPITALS. (322 Beds.) Applications are invited for the post of RESIDENT SENIOR HOUSE OFFICER. Salary and conditions as nationally agreed.

Candidates should write, giving age, qualifications, experience, details of previous posts, and 2 names for reference, to the Group Secretary, 47, High-street, Boston, Lincs

BLACKBURN AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER (pædiatrics) required to take up duty on or about 1st October, 1953. Recognised post for D.C.H. Residence at Park Lee Hospital, Blackburn, with such duties as required by Consultant Pædiatrician at the Royal Infirmary, and Queen's Park Hospital, Blackburn, and Victoria Hospital, Accrington.

Apply to the Secretary, Hospital Management Committee Office, Royal Infirmary, Blackburn.

BLACKBURN AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. MANCHESTER REGIONAL HOSPITAL BOARD. REGISTRAR (anæsthetics) required on or about 1st September, 1953. Post recognised for D.A. Residence at Blackburn Royal Infirmary with duties there, Queen's Park Hospital, Accrington Victoria Hospital and as arranged by Consultant-in-charge.

Apply to the Secretary, Hospital Management Committee Office, Royal Infirmary, Blackburn.

BRADFORD CHILDREN'S HOSPITAL. (102 Beds.) HOUSE OFFICER (Female), vacant now. Salary £350–£450 p.a., less £100 p.a. residential emoluments. (Recognised for D.C.H.)

Applications, stating age, nationality, qualifications and experience, with copy testimonials, to Secretary, Bradford Royal Infirmary.

BRADFORD. ROYAL EYE AND EAR HOSPITAL.

HOUSE SURGEON (E.N.T.), vacant 10th September.

HOUSE SURGEON (ophthalmology), vacant 17th August.

Hospital recognised for D.L.O., D.O.M.S. and F.R.C.S. Salary for both posts £350–£450 p.a., less £100 p.a. residential emoluments.

Applications, stating age, nationality, qualifications and experience, with copy testimonials, to Secretary, Bradford Royal Infirmary.

BRADFORD. ROYAL EYE AND EAR HOSPITAL. HOUSE SURGEON (ophthalmic), vacant 17th August. Hospital recognised for D.O.M.S. and F.R.C.S. Salary £350–£450 p.a., less £100 p.a. residential emoluments.

Applications, stating age, nationality, qualifications, and experience, with copy testimonials, to Secretary, Bradford Royal Infirmary.

BRADFORD ROYAL INFIRMARY. House Surgeon (Thoracic Unit) vacant now. Salary £350–£450 p.a., less £100 p.a. residential emoluments.

Applications, stating age, nationality, qualifications and experience, with copy testimonials, to Secretary.

BRADFORD. ST. LUKE'S HOSPITAL. Locum Senior HOUSE OFFICER (general medicine with duties in clinical pathology), for 12 weeks commencing 28th September, 1953. Salary £13 per week, less residential emoluments at rate of £130 p.a.

Application, stating age, nationality, qualifications and experience, with copy testimonials, to Secretary, Bradford Royal Infirmary.

BRADFORD. ST. LUKE'S HOSPITAL.

SENIOR HOUSE SURGEON (orthopædic/casualty), vacant 1st September. Salary £670 p.a., less £100 p.a. residential emoluments.

HOUSE SURGEON (general with casualty duties), vacant now to 31st January, 1954.

HOUSE SURGEON (general and plastic), vacant now to 31st January, 1954.

HOUSE OFFICER (pædiatrics), vacant now to 31st January, 1954.

HOUSE SURGEON (orthopædic/casualty), vacant 1st September–31st January, 1954.

Salary for above 4 posts £350–£450 p.a., less £100 p.a. residential emoluments.

Applications, stating age, nationality, qualifications and experience, with copy testimonials, to Secretary, Bradford Royal Infirmary.

BRIGHTON GENERAL HOSPITAL, Elm-grove, BRIGHTON, 7. Applications are invited for the appointment of a HOUSE SURGEON to the General Surgical Unit (60 Beds). Recognised for F.R.C.S. Vacant 18th August, 1953. Salary in accordance with national scale. The post is recognised as a pre-registration appointment.

Applications, stating age, qualifications, experience, naming 2 referees, to the Physician-Superintendent.

BRIGHTON. ROYAL SUSSEX COUNTY HOSPITAL. (300 Beds.) RESIDENT ANÆSTHETIST (Senior House Officer grade) required at the above Hospital, vacant now. Recognised for D.A.

Applications, stating age, qualifications and experience with names and addresses of 2 referees, to the Administrative Officer.

BRAINTREE, ESSEX. BLACK NOTLEY HOSPITAL. (544 Beds.) Locum SENIOR HOUSE OFFICER required for Surgical Tuberculosis Unit, comprising chiefly orthopædic tuberculosis, genito-urinary tuberculosis, and other non-pulmonary and combined lesions. Salary in accordance with the terms of service issued by the Ministry of Health.

Applications, with copies of 3 testimonials, should be forwarded to the Group Secretary Colchester Hospital Management Committee, 14, Pope's-lane, Colchester, Essex.

BRAINTREE, ESSEX. BLACK NOTLEY HOSPITAL. (544 Beds.) Applications invited for post of HOUSE OFFICER (orthopædic surgery), first, second, or third post. Post tenable for 6 months and is recognised under F.R.C.S. regulations. Salary in accordance with the terms of service issued by the Ministry of Health, plus £50 p.a.

Applications, with copies of 3 testimonials, should be forwarded to the Group Secretary, Colchester Hospital Management Committee, 14, Pope's-lane, Colchester, Essex.

BRAINTREE, ESSEX. BLACK NOTLEY HOSPITAL. (544 Beds.) Applications invited for post of SENIOR HOUSE OFFICER for Surgical Tuberculosis Unit, comprising chiefly orthopædic tuberculosis, genito-urinary tuberculosis, and other non-pulmonary and combined lesions. Post tenable for 1 year. Salary in accordance with the terms of service issued by the Ministry of Health.

Applications, with copies of 3 testimonials, should be forwarded to the Group Secretary, Colchester Hospital Management Committee, 14, Pope's-lane, Colchester, Essex.

BRAINTREE. BLACK NOTLEY HOSPITAL, and ESSEX COUNTY HOSPITAL, COLCHESTER. Applications invited for post of HOUSE SURGEON. First, second, or third post; tenable for 6 months. Duties to include work in general surgical and gynæcological wards. Salary in accordance with the terms of service issued by the Ministry of Health, plus £50 p.a. Recognised under F.R.C.S. regulations.

Applications, with copies of 3 testimonials, should be forwarded to the Group Secretary, Colchester Hospital Management Committee, 14, Pope's-lane, Colchester, Essex.

BRISTOL. COSSHAM MEMORIAL HOSPITAL. Applications are invited for the following appointments at Cossham Memorial Hospital, a general hospital of 89 Beds with considerable outpatient and casualty activity, situated in the industrial and residential area of East Bristol :—

SENIOR RESIDENT AND CASUALTY OFFICER (Senior House Officer grade), vacant immediately.

HOUSE SURGEON.

Applications, quoting age, experience, and names of 2 referees, to the Group Secretary, Frenchay Hospital, Bristol.

BRISTOL. COSSHAM/FRENCHAY HOSPITAL MANAGEMENT COMMITTEE. FRENCHAY HOSPITAL. HOUSE SURGEON required to work in Plastic and Jaw Surgery Unit.

Applications, with full particulars, should be sent to the Group Secretary, Frenchay Hospital, Bristol.

BRISTOL. COSSHAM/FRENCHAY HOSPITAL MANAGEMENT COMMITTEE. FRENCHAY HOSPITAL. (499 staffed beds, expanding.) Applications are invited for the post of SENIOR HOUSE OFFICER in the Regional Neurosurgery Department. This post offers useful surgical experience and the opportunity of gaining a working knowledge of neurological diagnosis.

Applications to the Secretary, Frenchay Hospital, quoting "N.S.F." Names of 2 referees required.

BRISTOL MENTAL HOSPITALS (Barrow and Fishponds). Applications are invited from registered medical practitioners for the appointment of SENIOR HOUSE OFFICER. Experience in general medicine or in neurology is an advantage. The Hospital Group includes modern admission-units, Neurosis Centre, and day hospital, with Departments of Applied Psychology, Electro-encephalography, and Biochemical Research. The appointment offers opportunities for experience in many aspects of acute and chronic psychiatric illness.

Applications, giving details of experience, and the names and addresses of 3 referees, should be made to the Medical Superintendent, Barrow Hospital, Barrow Gurney, near Bristol, not later than 2 weeks after the appearance of this advertisement.

BRENTWOOD, ESSEX. WARLEY HOSPITAL (formerly Brentwood Mental Hospital). SENIOR HOUSE OFFICER required. The Hospital is situated within easy reach of London by main line electric service and bus. There are over 2000 Beds and a wide experience of all types of mental disorders (including the neuroses) can be obtained. All modern treatments are carried out, including psychosurgery. Visiting Consultants in other specialties attend regularly. Teaching by senior staff and facilities for attending postgraduate courses are provided; also experience of outpatient clinics. Regular clinical meetings are held. The successful applicant will work under the direction of a Consultant Psychiatrist. Library, private bedroom and individual sitting-room are provided. Indoor and outdoor recreational facilities. The post may be non-resident. Salary at the rate of £670 p.a., less a reasonable charge for residential emoluments.

Applications, stating age, experience, and qualifications, should be sent to the Physician-Superintendent, with the names of 2 referees.

BRIDGEND GENERAL HOSPITAL, Quarella-road, BRIDGEND. (364 Beds.) MID-GLAMORGAN HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of SENIOR HOUSE OFFICER (anæsthetics). This Hospital is recognised for the D.A., and has a panel of distinguished full-time and visiting Consultants.

Applications, naming 2 referees, to be addressed to the Group Secretary of the Committee, 8, Wind-street, Neath.

BURY AND ROSSENDALE HOSPITAL MANAGEMENT COMMITTEE.

Bury General Hospital

RESIDENT CLINICAL PATHOLOGIST (Senior House Officer grade) with duties mainly at Bury General Hospital. The post, tenable for 1 year, affords opportunities for gaining experience in all branches of pathology. Salary and conditions of service as Ministry of Health scale.

SENIOR HOUSE OFFICER (surgical).

HOUSE OFFICER (surgical), pre-registration post.

Applications are invited for the above posts and should indicate age, nationality, qualifications, and experience, and should be sent to the undersigned as soon as possible.

H. WILKINSON, Group Secretary.

Bury General Hospital, Bury, Lancs.

BROMSGROVE. BARNSLEY HALL HOSPITAL. (750 Beds—mental and nervous diseases.) JUNIOR HOSPITAL MEDICAL OFFICER. Post offers experience in all branches of psychiatry.

Applications, with the names of 3 referees, to the Medical Superintendent.

BROXBURN. BANGOUR GENERAL HOSPITAL. Applications are invited for a vacancy on 1st October, 1953, as HOUSE PHYSICIAN in the General Medical Unit at Bangour Hospital, Broxburn. The salary for the post will be at the rate of £350–£450 p.a. according to previous experience, under deduction of £100 p.a. in respect of board and lodging and other services provided.

Applications, giving age, qualifications, and particulars of previous experience, if any, should be lodged with the Medical Superintendent, Bangour Hospital, Broxburn, West Lothian.

CAMBORNE. TEHIDY HOSPITAL. (189 Beds.) West CORNWALL HOSPITAL MANAGEMENT COMMITTEE. There is a vacancy for a RESIDENT HOSPITAL OFFICER for which applications are invited from registered medical practitioners. Those convalescent from tuberculosis will be favourably considered. A Thoracic Surgical Unit has recently been opened at this Hospital so that wide experience in the medical and surgical treatment of chest conditions is available. The duties also include attendance at weekly meetings of the specialist staff.

Applications to the Hospital Secretary.

CARDIFF. ST. DAVID'S HOSPITAL. (656 Beds.) CARDIFF HOSPITAL MANAGEMENT COMMITTEE. RESIDENT SENIOR HOUSE OFFICER in the Casualty Department, to commence duty as soon as possible.

Application forms from Group Secretary, Cardiff Hospital Management Committee, 44, Cathedral-road, Cardiff.

CARDIFF. ROYAL HAMADRYAD GENERAL AND SEAMEN'S HOSPITAL. CARDIFF HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER (resident) required at above Hospital which caters for acute general medical and surgical cases. There are Genito-urinary Unit for inpatients and outpatients, General Outpatient Department, and Casualty Department. Consultant staff of 8 drawn from United Cardiff Hospitals. Facilities exist for postgraduate study.

Application form immediately from Group Secretary, Cardiff Hospital Management Committee, 44, Cathedral-road, Cardiff.

CARDIFF ISOLATION HOSPITAL. Senior House OFFICER (resident) required at above Hospital.

Apply immediately to Group Secretary, Cardiff Hospital Management Committee, 44, Cathedral-road, Cardiff, giving particulars of age, qualifications, experience, &c., and names and addresses of 2 referees.

CHELMSFORD AND ESSEX HOSPITAL. Applications are invited for the post of CASUALTY OFFICER (Senior House Officer), resident and tenable for 1 year. It offers excellent experience in the treatment of fractures and diagnosis of acute medical and surgical emergencies. Opportunity is given for the Casualty Officer to follow up his cases in the wards and to obtain operating experience in major theatre under the guidance of the Consultants or the Resident Surgical Officer. Off-duty time is generous and the post is one likely to suit both an Officer seeking a higher qualification in surgery or one intending General Practice. The vacancy will occur in September. Salary £670 p.a., with £130 deduction for residential emoluments.

Apply Secretary, Chelmsford Group Hospital Management Committee, Chelmsford and Essex Hospital, London-road, Chelmsford, Essex.

CHERTSEY. SURREY. ST PETER'S HOSPITAL (late Botleys Park War Hospital). (430 Beds.) Required, SENIOR HOUSE OFFICER (Orthopædic Department.) Previous orthopædic experience not essential. Appointment very suitable for candidate reading for a higher qualification, and is recognised by the Royal College of Surgeons for the F.R.C.S. Salary in accordance with terms and conditions of National Health Service. Post vacant 24th August.

Applications quoting reference (LAN), together with names and addresses of referees, to Physician-Superintendent as soon as possible.

CHERTSEY, SURREY. ST. PETER'S HOSPITAL. (430 Beds.) The post of SENIOR HOUSE OFFICER in the Gynæcological and E.N.T. Departments will become vacant on 18th August.

Applications, together with testimonials, or names of referees, should be sent to the Physician-Superintendent as soon as possible.

CLACTON AND DISTRICT HOSPITAL, Clacton-on-Sea. (58 Beds.) Temporary SENIOR HOUSE OFFICER (Resident Casualty Officer) required for a few weeks from mid-August. Salary in accordance with the terms of service issued by the Ministry of Health.

Applications, with copies of 3 testimonials, to the Group Secretary, Colchester Hospital Management Committee, 14, Pope's-lane, Colchester, Essex.

COLCHESTER. ESSEX COUNTY HOSPITAL. (189 Beds.) Applications invited for post of HOUSE OFFICER to Casualty and Radiotherapy Departments at above Hospital. First, second, or third post; tenable for 6 months. Salary in accordance with the terms of service issued by the Ministry of Health.

Applications, with copies of 3 testimonials, should be forwarded to the Group Secretary, Colchester Hospital Management Committee, 14, Pope's-lane, Colchester, Essex.

COLCHESTER. ESSEX COUNTY HOSPITAL. (189 Beds.) Applications invited for post of SENIOR HOUSE OFFICER to Casualty and E.N.T. Departments at the above Hospital. Post tenable from mid-August for 6 months or 1 year. Salary in accordance with the terms of service issued by the Ministry of Health.

Applications, with copies of 3 testimonials, should be forwarded to the Group Secretary, Colchester Hospital Management Committee, 14, Pope's-lane, Colchester, Essex.

COLCHESTER. ESSEX COUNTY HOSPITAL. (189 Beds.) Locum CASUALTY OFFICER (Senior House Officer grade) required. Salary £13 a week. Usual deductions for residential emoluments.

Applications, with copies of 3 testimonials, to the Group Secretary, Colchester Hospital Management Committee, 14, Pope's-lane, Colchester, Essex.

COLCHESTER GROUP HOSPITAL MANAGEMENT COMMITTEE. ESSEX COUNTY HOSPITAL, COLCHESTER (21 gynæcological beds); COLCHESTER MATERNITY HOSPITAL (22 obstetric beds). HOUSE OFFICER (Male or Female), obstetric and gynæcological. First, second, third, or pre-registration post; tenable for 6 months. Salary in accordance with the terms of service issued by the Ministry of Health.

Applications, with copies of 3 testimonials, should be forwarded to the Group Secretary, 14, Pope's-lane, Colchester, Essex.

COVENTRY AND WARWICKSHIRE HOSPITAL. (346 Beds.) RESIDENT SENIOR HOUSE OFFICER in Anæsthetics required, now vacant. Salary £670 p.a. Hospital recognised for D.A. Excellent experience in all types of general anæsthesia.

Applications to the Secretary, Group 20 Hospital Management Committee, Coventry and Warwickshire Hospital, Coventry.

COVENTRY. GULSON HOSPITAL. (329 Beds.) House PHYSICIAN required for 3rd September (106 general medicine beds).

Applications to the Secretary, Group 20 Hospital Management Committee, Coventry and Warwickshire Hospital, Coventry.

CARSHALTON, SURREY. ST. HELIER HOSPITAL, Wrythe-lane. ST. HELIER GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from registered medical practitioners for the following posts:—

(*a*) HOUSE SURGEON (general surgery) with E.N.T. duties.
(*b*) HOUSE SURGEON (general surgery with duties in genito-urinary).

Both posts vacant end of August and tenable for 6 months. Salary in accordance with National Health Service scale.

Applications, stating age, qualifications, &c., and the names and addresses of 2 referees, to be sent to the Group Secretary at above address.

CARSHALTON, SURREY. ST. HELIER HOSPITAL, Wrythe-lane. ST. HELIER GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for 2 posts of CASUALTY OFFICER (Senior House Officer), vacant August. Salary £670 p.a.

Applications, stating age, qualifications and experience, with copies of 2 testimonials and the names of 2 referees, should be sent as soon as possible to the Group Secretary at the above address.

DARLINGTON MEMORIAL HOSPITAL. Applications are invited from Male or Female practitioners with experience for the post of SURGICAL REGISTRAR (Senior House Officer) which is one of a surgical team of 2 Registrars and 1 House Officer responsible for surgical beds and casualty. The post is recognised for the F.R.C.S.(Eng.) Salary £670 p.a., deduction of £150 p.a. for full residential emoluments. The post is tenable for 12 months and is renewable annually.

Apply with references, stating age and experience, to—
G. W. BECKWITH, Group Secretary.

DARLINGTON MEMORIAL HOSPITAL. (210 Beds.) DARLINGTON DISTRICT HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of HOUSE SURGEON (resident), which post is recognised for the F.R.C.S. (Eng.). Salary in accordance with national scale.

Apply, giving age and references, to the undersigned forthwith.
G. W. BECKWITH, Group Secretary.

DARTFORD HOSPITAL MANAGEMENT COMMITTEE.

SENIOR HOUSE OFFICER (anæsthetics) at Joyce Green Hospital, Dartford.
*HOUSE SURGEON (general) at the Joyce Green Hospital, Dartford.
HOUSE SURGEON (orthopædics) at the Southern Hospital, Dartford.
*HOUSE OFFICER (general medicine) at the Southern Hospital, Dartford.
HOUSE OFFICER (E.N.T. and ophthalmology) at the Southern Hospital, Dartford.

*Appointment approved for pre-registration purposes.

Applications, stating age, qualifications, experience, nationality, and the names of 2 persons to whom reference may be made, to be sent for House Officers to the Medical Superintendent of the hospital concerned, and for Senior House Officer to the Group Secretary, Dartford Hospital Management Committee, the Bow Arrow Hospital, Dartford.

DERBY. DERBYSHIRE ROYAL INFIRMARY. (Recognised training post for F.R.C.S. (Otolaryngology).) SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time NON-RESIDENT REGISTRAR (E.N.T.) required. Appointment for 1 year in first instance.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 24th August, 1953, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

DONCASTER ROYAL INFIRMARY. (Recognised under the regulations for the Fellowship and D.L.O.) DONCASTER HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from registered medical practitioners for the whole-time post of SENIOR HOUSE OFFICER (E.N.T. Department), in accordance with the terms and conditions of service for hospital medical and dental staffs (England and Wales). Salary at the rate of £670 p.a., less £130 p.a. for board, residence, &c.

Applications, stating age, education, qualifications, and details of present and previous appointments with dates, together with copies of 3 testimonials, should be forwarded to—
ARTHUR JONES, Group Secretary.
Doncaster Royal Infirmary.

DONCASTER ROYAL INFIRMARY. Sheffield Regional HOSPITAL BOARD. Whole-time REGISTRAR (pathology) required. Appointment for 1 year in first instance.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 24th August, 1953, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

DONCASTER ROYAL INFIRMARY. (Recognised under the regulations for the F.R.C.S.) DONCASTER HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from registered medical practitioners for the post of SECOND CASUALTY OFFICER (Senior House Officer) at above Infirmary. Salary £670 p.a., from which a deduction at the rate of £130 p.a. will be made for residential emoluments.

Applications, stating age, qualifications, and details of present and previous appointments with dates, and enclosing copies of 3 recent testimonials, should be forwarded to—

ARTHUR JONES, Secretary to the Committee.

Doncaster Royal Infirmary.

DEWSBURY. STAINCLIFFE GENERAL HOSPITAL. (314 Beds.) RESIDENT SURGICAL OFFICER (Senior House Officer grade). Post now vacant. The Surgical Unit comprises 66 Beds and the Hospital is recognised for the F.R.C.S.

Applications, giving full details, to the Administrative Officer at the Hospital.

DEWSBURY. STAINCLIFFE GENERAL HOSPITAL. (314 Beds.) HOUSE OFFICER (general medicine and dermatology), first, second, or third post, vacant now and tenable for 6 months. Recognised pre-registration appointment.

Applications, with full particulars, to the Administrative Officer at the Hospital.

DEWSBURY. STAINCLIFFE GENERAL HOSPITAL. (314 Beds.) HOUSE OFFICER (general surgery), first, second, or third post, vacant now and tenable for 6 months. Recognised pre-registration appointment. The Hospital is recognised for the F.R.C.S.

Applications, with full particulars, to the Administrative Officer at the Hospital.

DORKING GENERAL HOSPITAL, Horsham-road, DORKING, SURREY. (252 Beds.) Applications are invited for the post of SENIOR HOUSE OFFICER (surgical), for immediate appointment or as Locum Tenens if preferred.

Apply to the Medical Superintendent.

DORKING GENERAL HOSPITAL, Horsham-road, DORKING, SURREY. (252 Beds.) Applications are invited for the post of SENIOR HOUSE OFFICER in Obstetrics and Gynæcology with some general surgery. Vacant 11th September for 1 years appointment (renewable). Post recognised for D.Obst.R.C.O.G.

Apply to the Medical Superintendent.

DOVERCOURT, ESSEX. HARWICH AND DISTRICT HOSPITAL. (30 Beds.) Full-time Temporary SURGICAL REGISTRAR required immediately for 3 months. Salary in accordance with the terms of service issued by the Ministry of Health.

Applications, with copies of 3 testimonials, should be forwarded to the Secretary, Colchester Group Hospital Management Committee, 14, Pope's-lane, Colchester, Essex.

DOVER. ROYAL VICTORIA HOSPITAL. Applications are invited for the post of HOUSE SURGEON at the above Hospital. The post is recognised by the Royal College of Surgeons. Salary £350, £400, or £450 a year according to experience. A deduction of £100 a year will be made for residential emoluments.

Applications, stating age, qualifications, and the names and addresses of 2 referees, to the Group Secretary, "Ash-Eton," Radnor Park West, Folkestone.

ENFIELD, MIDDLESEX. CHASE FARM HOSPITAL. ENFIELD GROUP HOSPITAL MANAGEMENT COMMITTEE. RESIDENT HOUSE SURGEON (second or third post—approved pre-registration post), required 18th August, 1953, for general surgical duties. Post, which is tenable for 6 months, is recognised for the F.R.C.S. Practitioners holding first posts may apply.

Applications, stating age, nationality, qualifications and experience, with the names and addresses of 2 referees, to the Secretary, Enfield Group Hospital Management Committee, Chase Farm Hospital, by 12th August, 1953.

ENFIELD, MIDDLESEX. CHASE FARM HOSPITAL. ENFIELD GROUP HOSPITAL MANAGEMENT COMMITTEE. Locum SENIOR HOUSE OFFICER for casualty duties required for 3 weeks from 24th August, 1953. Resident or non-resident. Hours 9 A.M.–5.30 P.M. Monday–Friday; 9 A.M.–1 P.M. Saturday.

Applications, stating age, qualifications, experience, nationality, and the names of 2 referees, to the Secretary of the Management Committee at Chase Farm Hospital immediately.

EAST CUMBERLAND HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the following HOUSE OFFICER appointments which are now vacant :—

Cumberland Infirmary, Carlisle (340 Beds)

1—General Surgery.
1—General Medicine.
1—Orthopædics.
1—"Specials"—(E.N.T. and Eyes).

Applications, with names of 2 referees, should be forwarded immediately to the Secretary, East Cumberland Hospital Management Committee, Cumberland Infirmary, Carlisle.

EDGWARE GENERAL HOSPITAL, Edgware, Middlesex. Locum Tenens (long-term) REGISTRAR or JUNIOR HOSPITAL MEDICAL OFFICER required for approximately 4 sessions per week in the Physical Medicine Department at above Hospital. Particulars on application to the Director of Physical Medicine.

Apply, giving details of qualifications and experience, together with the names of 2 referees, to Group Secretary, Hendon Group Hospital Management Committee, Edgware General Hospital, by 22nd August, 1953.

EDGWARE GENERAL HOSPITAL AND BUSHEY MATERNITY HOSPITAL. NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. OBSTETRICAL AND GYNÆCOLOGICAL REGISTRAR required at above Hospital. Department has 130 obstetrical and 40 gynæcological beds. Whole-time, non-resident. Hospital may be visited by direct appointment.

Application forms obtainable from, and returnable to, Group Secretary, Edgware General Hospital, Edgware, Middlesex, by 18th August, 1953.

EDGWARE GENERAL (formerly Redhill County) HOS-PITAL, EDGWARE, MIDDLESEX. RESIDENT HOUSE PHYSICIAN. Post vacant 23rd September, 1953. Salary £350–£450 p.a. according to experience. Deduction of £100 p.a. for board, lodging, &c. 6 months appointment.

Applications, stating age, qualifications, experience, and enclosing copies of up to 3 recent testimonials, to Medical Director of Hospital by 22nd August. Candidates selected for interview will be notified by 29th August.

EDGWARE GENERAL (formerly Redhill County) HOS-PITAL, EDGWARE, MIDDLESEX. Locum CASUALTY REGISTRAR (non-resident) required at above Hospital from 31st August, 1953 to 25th November, 1953.

Apply immediately to the Medical Director.

EPPING. ST. MARGARET'S HOSPITAL. (485 Beds.) Applications are invited for a post of RESIDENT SENIOR HOUSE OFFICER (surgery) as Casualty Officer and Orthopædic House Surgeon, now vacant. Busy General Hospital with easy access to London. Salary on national scale, less deduction for board, lodging, &c.

Applications, with copies of 2 testimonials, to reach the Group Secretary, Epping Group Hospital Management Committee, St. Margaret's Hospital, Epping, Essex, by 21st August, 1953.

EXETER CLINICAL AREA. The Board of Governors OF THE UNITED BRISTOL HOSPITALS AND THE SOUTH-WESTERN REGIONAL HOSPITAL BOARD. Applications are invited by the above Boards from registered medical practitioners for the joint appointment of SENIOR REGISTRAR in General Medicine. Applicants should have had wide experience in general medicine. The appointment will be held for 1 year in the first instance but may be renewed thereafter on an annual basis. The successful candidate will be required to work for the first year at the Royal Devon and Exeter Hospital, Exeter, and to visit other hospitals in the Clinical Area as may be required by the Regional Board from time to time. Exchange arrangements with the Teaching Hospital at Bristol exist in relation to this post.

Applications (12 copies), stating date of birth, qualifications and experience, together with 12 copies of 2 testimonials, and the names and addresses of 2 referees, should be sent to the Secretary of the Regional Hospital Board, 27, Tyndalls Park-road, Bristol, 8, not later than 22nd August, 1953.

EXETER. ROYAL DEVON AND EXETER HOSPITAL. EXETER AND MID-DEVON HOSPITALS MANAGEMENT COMMITTEE. Applications are invited from registered medical practitioners (Male and Female) for the appointment of HOUSE SURGEON (Obstetric and Gynæcological Department), vacant 20th September, 1953. The appointment is for a period of 6 months, and is available to pre-registration candidates.

Applications, with copies of 2 recent testimonials, should be forwarded to the Hospital Secretary by 15th August, 1953.

EXETER. ROYAL DEVON AND EXETER HOSPITAL. EXETER AND MID-DEVON HOSPITALS MANAGEMENT COMMITTEE. Applications are invited from registered medical practitioners (Male and Female) for the post of CASUALTY OFFICER, and to act as House Surgeon to the E.N.T. Department, with alternate week-ends on duty for the Obstetric and Gynæcological Department. Vacant 26th August, 1953. The appointment is for a period of 6 months.

Applications, with copies of 2 recent testimonials, to the Hospital Secretary.

FARNBOROUGH HOSPITAL, Farnborough, Kent. House SURGEON required immediately at above Hospital for 6 months Recognised for F.R.C.S. Salary £350–£450, less £100 for residence. Preference given to pre-registration candidates.

Apply, stating age, qualifications with dates, and experience, and naming 3 referees, to the Administrative Officer.

GUILDFORD. ROYAL SURREY COUNTY HOSPITAL. CASUALTY OFFICER required. The grading is that of Senior House Officer and 2 Casualty Officers are employed who share the work of the department which is part of the Orthopædic and Traumatic Unit. Regular instruction is given in traumatic surgery and Casualty Officers take part in the work of the fracture clinics. Post vacant on 21st September and will be resident for the first 6 months with option of renewal.

Applications, with copies of testimonials, to the Hospital Secretary.

GLOUCESTER. GLOUCESTERSHIRE ROYAL HOS-PITAL, Great Western-road, GLOS. (315 Beds.) SENIOR HOUSE OFFICER required in the Orthopædic and Traumatic Surgery Department at the above Hospital. Staff : 1 Registrar, 2 Senior House Officers. Unit comprises 75 active beds.

Applications, naming 2 referees, to the Group Secretary, Gloucestershire Royal Hospital, Southgate-street, Gloucester.

GLASGOW. THE VICTORIA INFIRMARY OF GLAS-GOW has a vacancy for a SENIOR HOUSE OFFICER in General Surgery.

Applications, with names of 2 referees, immediately to the Secretary, Board of Management for Glasgow Victoria Hospitals, 24, St. Vincent-place, Glasgow, C.1.

GRIMSBY GENERAL HOSPITAL. (220 Beds.) Grimsby HOSPITALS MANAGEMENT COMMITTEE. Applications are invited for the post of SENIOR HOUSE OFFICER (gynæcological), Male or Female, for duties at the above-named Hospital and Scartho Road Infirmary, Grimsby. The post is now vacant.

Applications, with names of 2 referees, to Hospital Secretary, Grimsby General Hospital.

GRIMSBY MATERNITY HOSPITAL. (45 Beds.) Applications are invited for the post of SENIOR OBSTETRIC HOUSE OFFICER (resident), vacant on 31st August, 1953. A large proportion of abnormal cases are treated.

Apply immediately, with names of 2 referees, to the Secretary, Grimsby Hospital Management Committee, 3, Queen's-parade, Grimsby.

GRIMSBY GROUP OF HOSPITALS. Sheffield Regional HOSPITAL BOARD. Whole-time NON-RESIDENT REGISTRAR (obstetrics and gynæcology) required. Appointment for 1 year in first instance.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 24th August, 1953, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

GODALMING. KING GEORGE V HOSPITAL FOR DISEASES OF THE CHEST. (232 Beds.) GODALMING, MILFORD AND LIPHOOK GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for a Whole-time RESIDENT MEDICAL REGISTRAR at the above Hospital, which includes a small Non-tuberculous Surgical Unit, and has all facilities for modern treatment of tuberculosis. The post will become vacant at the end of November, 1953.

Forms of application can be obtained from the Secretary of the Management Committee, Group Office, King George V Hospital for Diseases of the Chest, Godalming, Surrey, to whom they should be returned not later than 22nd August, 1953.

GODALMING, SURREY. KING GEORGE V HOSPITAL FOR DISEASES OF THE CHEST. (232 Beds.) GODALMING, MILFORD AND LIPHOOK GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the appointment of a SENIOR HOUSE OFFICER (medical) at the above Hospital. The appointment is residential; salary and deduction for board, lodging, &c., in accordance with the national scale (£670). The post will become vacant in mid-September, 1953. All modern forms of treatment are carried out at the Hospital, including major thoracic surgery, a proportion of the beds being set aside for non-tuberculous thoracic surgery.

Applications, giving full details, together with the names of 3 referees, to be sent, as soon as possible, to the Physician-Superintendent, King George V Hospital for Diseases of the Chest, Godalming, Surrey.

HALIFAX AREA HOSPITALS MANAGEMENT COM-MITTEE. Applications invited for the post of JUNIOR HOSPITAL MEDICAL OFFICER in Anæsthetics for duty at Royal Halifax Infirmary (301 Beds) and Halifax General Hospital (425 Beds), both busy acute general hospitals.

Applications, with copies of 2 testimonials, to be forwarded to Group Secretary, Royal Halifax Infirmary, Halifax.

HAROLD WOOD HOSPITAL, Harold Wood, Essex (near London). (421 Beds.) RESIDENT SENIOR HOUSE OFFICER (anæsthetics). Main general and casualty hospital in the Group. Salary £670 p.a., less £130 p.a. board and lodging.

Apply, stating age, nationality, qualifications, experience, and names of 2 referees, to the Group Secretary, High Wood Hospital, Brentwood, Essex (Tel.: Brentwood 2563), from whom full details may be obtained.

HASTINGS. ST. HELEN'S HOSPITAL. (491 Beds.) HOUSE SURGEON required, resident, Male or Female. Pre-registration post, now vacant. National scale of salary.

Apply to Hospital Administrator.

HASTINGS. ROYAL EAST SUSSEX HOSPITAL. (150 Beds.) SENIOR HOUSE OFFICER (casualty and orthopædic), post vacant now. National scale of salary.

Apply to Hospital Administrator.

HAVERFORDWEST. PEMBROKE COUNTY WAR MEMORIAL HOSPITAL. (151 Beds—Recognised by the Royal College of Surgeons and for Pre-registration Service.) WEST WALES HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of RESIDENT HOUSE OFFICER (surgical). Salary £350, £400, or £450 p.a., plus grant of £50 p.a., according to experience, less £100 p.a. for board-residence.

Applications, stating age, qualifications, experience, and nationality, with names and addresses of 3 referees, to Group Secretary, West Wales Hospital Management Committee, Glangwili, Carmarthen.

HILLINGDON HOSPITAL, near Uxbridge, Middlesex. HOUSE SURGEON (resident) required for gynæcological duties at above Hospital. Previous gynæcological experience desirable but not essential. Post recognised for M.R.C.O.G.

Applications, stating age, nationality, qualifications and experience, and enclosing copies of not more than 3 testimonials, to Medical Director by 17th August.

HITCHIN HOSPITALS, Hitchin, Herts. Applications are invited for the post of RESIDENT HOUSE SURGEON at the North Herts Hospital. Vacant 2nd September.

Applications, stating age, nationality, qualifications, and experience, together with copies of 3 recent testimonials, to be sent to the Medical Director, Lister Hospital, Hitchin, Herts.

HOUNSLOW HOSPITAL, Staines-road, Hounslow, MIDDLESEX (General acute—81 Beds), invites applications for appointment of RESIDENT HOUSE PHYSICIAN. Recognised pre-registration appointment, 6 months. Vacant 26th August, 1953. Preference will be given to persons seeking post for pre-registration under Medical Act, 1950. Salary £350, £400, or £450 p.a. according to experience, less £100 p.a. for residence.

Applications, stating qualifications, age, &c., with copies of up to 3 recent testimonials or names for reference, to the Hospital Secretary.

HEMEL HEMPSTEAD, HERTS. WEST HERTS HOS-PITAL. (167 Beds—5 Residents.) Applications are invited for the post of HOUSE SURGEON (first or subsequent post) for a term of 6 months.

Applications, with full details and copies of 2 recent testimonials, should be sent to the Administrator.

HEMEL HEMPSTEAD, HERTS. WEST HERTS HOS-PITAL. (167 Beds—5 residents.) HOUSE PHYSICIAN to Children's Department required, (second or subsequent post). The appointment is recognised for the D.C.H. and falls vacant on 10th September, 1953.

Applications, giving details of experience and qualifications, and enclosing copies of 2 recent testimonials, should be sent to the Administrator.

HEREFORD. GENERAL HOSPITAL. (154 Beds.) HOUSE OFFICER (pædiatrics) required immediately.

Applications, with copies of 2 recent testimonials, to the Secretary, Hospital Management Committee, County Hospital, Hereford.

HEREFORD. GENERAL HOSPITAL. (154 Beds.) HOUSE OFFICER (medicine) required immediately.

Applications, with copies of 2 recent testimonials, to the Secretary, Hospital Management Committee, County Hospital, Hereford.

HERTFORD COUNTY HOSPITAL. (171 Beds. Hospital situated 21 miles from London.) CASUALTY HOUSE OFFICER (Male or Female), second or third post held, with attachment to Pædiatrician and Ophthalmic Consultant. Salary £400–£450 p.a., less £100 p.a. residential emoluments. Appointment to commence mid-August. Applications for locum period would be considered.

Apply, with full details and references, to Secretary, Hertford County Hospital, Hertford, Herts.

HUDDERSFIELD ROYAL INFIRMARY. (312 Beds.) HUDDERSFIELD HOSPITAL MANAGEMENT COMMITTEE. HOUSE SURGEON required to commence duty immediately. Salary in accordance with the terms and conditions of service for hospital medical and dental staffs, with full residential emoluments. The post is recognised as a pre-registration appointment.

Applications, together with copies of 3 recent testimonials, to be addressed to the undersigned as soon as possible.

H. J. JOHNSON, Secretary to the Management Committee.
The Royal Infirmary, Huddersfield.

HUDDERSFIELD ROYAL INFIRMARY. (312 Beds.) HUDDERSFIELD HOSPITAL MANAGEMENT COMMITTEE. HOUSE PHYSICIAN required to commence duty immediately. Salary in accordance with the terms and conditions of service for hospital medical and dental staffs, with full residential emoluments. The post is recognised as a pre-registration appointment.

Applications, together with copies of 3 recent testimonials, to be addressed to the undersigned as soon as possible.

H. J. JOHNSON, Secretary to the Management Committee.
The Royal Infirmary, Huddersfield.

HULL. KINGSTON GENERAL HOSPITAL. (398 Beds.) Applications are invited for the appointments of 2 HOUSE OFFICERS; 1 mainly gynæcology and 1 general surgery (recognised pre-registration appointments). Salary £350, £400, or £450 according to experience. The posts are resident and tenable for 6 months.

Applications to be forwarded to the Secretary, Hull A Group Hospital Management Committee.

HULL ROYAL INFIRMARY. Hull A Group Hospital MANAGEMENT COMMITTEE. Applications are invited for the appointment of RESIDENT SURGICAL OFFICER (Senior House Officer grade), vacant now. Recognised for F.R.C.S. Salary will be at the rate of £670 p.a., less deduction of £130 p.a. for residential emoluments. National conditions of service. Appointment for 12 months in the first instance. Notice 2 months either side.

Application forms from the Hospital Secretary.

ILFORD MATERNITY HOSPITAL, Eastern-avenue, ILFORD. There will be a vacancy for a SENIOR HOUSE OFFICER at the above Hospital on 24th September, 1953. Salary £670 p.a., less emoluments. Applicant should have been registered not less than 1 year.

Applications should be sent, accompanied by copies of 3 testimonials, to the undersigned within 7 days of the appearance of this advertisement.

G. AUSTIN HEPWORTH, Secretary,
Ilford and Barking Group Hospital Management Committee.
King George Hospital, Ilford.

ILKLEY (near). THE HOSPITAL, Middleton-in-Wharfe-DALE, near ILKLEY. (430 Beds.) MIDDLETON AND GRASSINGTON GROUP. Applications are invited for the appointment of JUNIOR HOSPITAL MEDICAL OFFICER (resident) at the above Hospital for tuberculosis. Experience in tuberculosis essential and some experience in obstetrics desirable. Remuneration £700 rising to £1000 p.a., in accordance with national award, from which will be made an appropriate deduction for full board-residence.

Applications to the Secretary at the above Hospital.

IPSWICH. EAST SUFFOLK AND IPSWICH HOSPITAL. (360 Beds.) EAST ANGLIAN REGIONAL HOSPITAL BOARD. RADIOLOGICAL REGISTRAR at the above Hospital. The department is the centre for Consultant Radiological Services for the Ipswich Hospital Group. Appointment for 1 year, renewable for second year.

Applications, stating age, qualifications, and details of present and previous appointments, together with names of 3 referees, to Secretary of Board, 117, Chesterton-road, Cambridge, by 24th August, 1953. Candidates invited to visit Hospital by direct arrangement with Hospital Management Committee Secretary at the Hospital.

IPSWICH. EAST SUFFOLK AND IPSWICH HOSPITAL. (360 Beds.) Applications are invited for the post of SENIOR HOUSE OFFICER RESIDENT ANÆSTHETIST. The post, which is normally of 1 years duration, is recognised for the D.A. examination.

Applications, stating age, nationality, together with recent testimonials, to Hospital Secretary.

IPSWICH. EAST SUFFOLK AND IPSWICH HOSPITAL. (360 Beds.) Applications are invited for the post of SENIOR HOUSE SURGEON to the Fracture and Orthopædic Department. The post is graded Senior House Officer and is now vacant. The Department has 2 Consultants, about 60 Beds, and a large outpatients attendance and offers a wide experience.

Applications, stating age, nationality, experience, and copies of 3 recent testimonials, to the Hospital Secretary.

IPSWICH. EAST SUFFOLK AND IPSWICH HOSPITAL. (360 Beds.) Applications are invited for the post of HOUSE SURGEON to the Fracture and Orthopædic Department, Approved pre-registration post.

Applications, stating age, nationality, experience, and copies of recent testimonials, to the Hospital Secretary.

IPSWICH BOROUGH GENERAL HOSPITAL, Heath-road, IPSWICH. (275 Beds.) Applications are invited for the posts of HOUSE PHYSICIAN (pre-registration) to both the General Physician and the Pædiatric Department at this Hospital. Previous pædiatric experience is not required in the post involving these duties. The posts are of House Officer grade and are recognised for pre-registration purposes.

Applications, giving details of qualifications, age, nationality, &c., together with copies of 2 recent testimonials to the Hospital Secretary.

ISLEWORTH. WEST MIDDLESEX HOSPITAL. South WEST MIDDLESEX HOSPITAL MANAGEMENT COMMITTEE. HOUSE OFFICER required for Tuberculosis Unit (90 Beds), first, second, or third post.

Applications, stating age, nationality, qualifications, and experience, with copies of up to 3 recent testimonials, to Group Secretary, West Middlesex Hospital, Isleworth, by 18th August, 1953.

ISLE OF THANET HOSPITAL MANAGEMENT COMMITTEE.

General Hospital, Ramsgate (101 Beds)
SENIOR HOUSE OFFICER (surgical).
General Hospital, Margate (132 Beds)
SENIOR HOUSE OFFICER (surgical).
Recognised for F.R.C.S. and D.A. Salary £670 p.a., less charge for residential emoluments.

Applications, with copies of testimonials to Hospital Secretary of appropriate hospital.

LEAMINGTON SPA. WARNEFORD GENERAL HOSPITAL. (207 Beds.) SOUTH WARWICKSHIRE HOSPITAL GROUP (NO. 14). RESIDENT HOUSE SURGEON (general surgery). Post vacant 11th September, 1953. Recognised for pre-registration.

Apply to the Hospital Secretary.

LEAMINGTON SPA. WARNEFORD GENERAL HOSPITAL. (207 Beds.) SOUTH WARWICKSHIRE HOSPITAL GROUP (NO. 14). Applications are invited for the appointment of HOUSE PHYSICIAN. Post vacant on 2nd September, 1953. Pre-registration post.

Applications, with 2 recent testimonials, should be sent to the Hospital Secretary as soon as possible.

LEAMINGTON SPA. WARNEFORD GENERAL HOSPITAL. (207 Beds.) SOUTH WARWICKSHIRE HOSPITAL GROUP (NO. 14). HOUSE SURGEON (obstetrics and gynæcology). Recognised for D.Obst.R.C.O.G.

Apply as soon as possible to the Hospital Secretary.

LEICESTER ROYAL INFIRMARY. Sheffield Regional HOSPITAL BOARD. Whole-time RESIDENT REGISTRAR (anæsthetics) required. Appointment for 1 year in first instance.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 17th August, 1953, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

LEIGH INFIRMARY, Leigh. (102 Beds.) Wigan and LEIGH HOSPITAL MANAGEMENT COMMITTEE. HOUSE PHYSICIAN (resident) required at the above Hospital, House Officer grade post, now vacant. Approved pre-registration post.

Applications, stating age and qualifications, together with the names of 2 referees, should be forwarded to the Secretary, Wigan and Leigh Hospital Management Committee, Knowsley House, Wigan, as early as possible.

LENNOXTOWN, STIRLINGSHIRE. LENNOX CASTLE MATERNITY HOSPITAL. Applications are invited from suitably qualified medical practitioners for the appointment of RESIDENT SENIOR HOUSE OFFICER in Obstetrics and Gynæcology at the above Hospital (160 Beds) which will be for 6 months in the first instance. The appointment will be subject to the National Health Service (Scotland) superannuation regulations.

Applications (8 copies), stating age, qualifications and experience, present appointment, and giving names of 3 referees, to be submitted not later than 18th August, 1953, to the Secretary and Treasurer, 113, Douglas-street, Glasgow, C.2.

LIVERPOOL. MOSSLEY HILL HOSPITAL. (148 Beds.) MINISTRY OF PENSIONS. REGISTRAR in Surgery. This post, which is now vacant, provides useful experience in general surgery. Salary is at the usual rate of £775 for the first year and £890 second year with a deduction for residential emoluments of £130 and £140 a year respectively.

An application form will be provided on request to the Director General of Medical Services (M.S.2), Ministry of Pensions, Norcross, Blackpool, Lancs.

LIVERPOOL. THE UNITED LIVERPOOL HOSPITALS. ROYAL SOUTHERN HOSPITAL. ROYAL LIVERPOOL CHILDREN'S HOSPITAL. Applications are invited for posts of CASUALTY OFFICERS (House Officer grade) for the period 1st September, 1953–28th February, 1954. The posts are open to registered practitioners and pre-registration applicants and may be resident or non-resident.

Apply with full details as soon as possible to the Secretary, The United Liverpool Hospitals, 80, Rodney-street, Liverpool, 1.

LIVERPOOL. THE UNITED LIVERPOOL HOSPITALS. Applications are invited for posts of ORTHOPÆDIC HOUSE SURGEONS at :—

David Lewis Northern Hospital,*
Royal Southern Hospital,
Royal Liverpool Children's Hospital,

for the period 1st September, 1953–28th February, 1954. The posts are open to registered practitioners and pre-registration applicants and may be resident or non-resident. The person appointed to the post marked * will be required to undertake some casualty work as part of his normal duties.

Apply as soon as possible with full details to the Secretary, The United Liverpool Hospitals, 80, Rodney-street, Liverpool, 1.

LIVERPOOL. THE UNITED LIVERPOOL HOSPITALS. ROYAL LIVERPOOL CHILDREN'S HOSPITAL. Applications are invited from registered medical practitioners for a part-time appointment for 1 notional half-day per week as MEDICAL OFFICER in charge of the Sunlight Department for the period 1st October, 1953–30th September, 1954. The appointment is assessed as a General-Practitioner post and the remuneration is at the rate of £175 p.a.

Applications together with full details should be sent by Saturday, 15th August, 1953, to the Secretary, The United Liverpool Hospitals, 80, Rodney-street, Liverpool, 1.

LLANELLY HOSPITAL. (164 Beds.) Glantawe Hospital MANAGEMENT COMMITTEE. Applications are invited from registered medical practitioners for the resident post of SENIOR HOUSE OFFICER for work in the Surgical Unit, and with duties in the Casualty Department of the above Hospital.

Full particulars stating age, qualifications and experience, should be addressed to the undersigned.

O. C. HOWELLS, Group Secretary,
Glantawe Hospital Management Committee.
St. Helen's-road, Swansea.

LOUTH, LINCS. COUNTY INFIRMARY. (200 Beds.) Applications are invited for the post of SENIOR HOUSE OFFICER (surgical) or JUNIOR HOUSE OFFICER (pre-registration), at this busy General Hospital. The post is resident and appropriate deductions will be made in respect of board, residence, &c.

Applications, giving full particulars, together with names of 2 referees, to be addressed to the Hospital Secretary.

LOWESTOFT AND NORTH SUFFOLK HOSPITAL, LOWESTOFT. (99 Beds.) Applications are invited for the appointment of SENIOR HOUSE SURGEON. Salary £670 p.a., less £150 for residential emoluments. The Hospital is staffed by a Consultant General Surgeon and visiting Consultants in all specialties from the Norfolk and Norwich Hospital.

Applications, stating age, qualifications and experience, with names of 2 referees, to Hospital Secretary immediately.

LYMINGTON HOSPITAL, Lymington, Hants. (107 Beds.) SENIOR HOUSE OFFICER (surgical) required immediately. Post normally tenable 1 year.

Apply, stating qualifications and experience, with copies of recent testimonials, to the Group Secretary, Southampton Hospital Management Committee, Bullar-street, Southampton.

LYMINGTON HOSPITAL, Lymington, Hants. (107 Beds.) RESIDENT SENIOR HOUSE OFFICER (medical) required from mid-September.

Applications, with copies of testimonials, to be submitted as soon as possible to the Secretary, Southampton Group Hospital Management Committee, Bullar-street, Southampton.

MANCHESTER REGIONAL HOSPITAL BOARD. Salford HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of NON-RESIDENT REGISTRAR in E.N.T. Surgery in the above Group, with main duties at Hope and the Royal Manchester Children's Hospitals.

Applications, together with copies of 2 recent testimonials, should be sent to the Group Secretary, Salford Royal Hospital, Salford, 3, before 15th August, 1953.

MANCHESTER REGIONAL HOSPITAL BOARD. Salford HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of RESIDENT ANÆSTHETIST (Registrar grade) in the above Group. The post is recognised for the D.A. Experience in the administration of anæsthetics for all types of surgery is available in the hospitals of the Group. Candidates wishing to take advantage of these facilities may do so. Details will be supplied on request.

Applications, together with copies of 2 recent testimonials, should be sent to the Group Secretary, Salford Royal Hospital, Salford, 3, before 15th August, 1953.

MANCHESTER REGIONAL HOSPITAL BOARD invite applications for the post of RESIDENT REGISTRAR in the Board's Non-tuberculous Thoracic Surgery Unit of 48 Beds based at Park Hospital, Davyhulme. National Health Service terms and conditions will apply. The successful candidate will be appointed for 1 year in the first instance and can take up the appointment immediately.

Application forms from the Secretary, West Manchester Hospital Management Committee, Park Hospital, Davyhulme.

MANCHESTER REGIONAL HOSPITAL BOARD. REGISTRAR (chest diseases) required to carry out duties arranged by the Consultant Chest Physician at the Altrincham Northwich, Crewe, and Hefferston Grange Sanatorium Chest Clinics.

Applications, together with 2 recent testimonials, should be sent to the Group Secretary, North and Mid-Cheshire Hospital Management Committee, The Hospital, Sinderland-road, Altrincham, Cheshire, not later than 10th August, 1953.

MANCHESTER REGIONAL HOSPITAL BOARD. Applications are invited for the post of REGISTRAR in Chest Diseases in the Ashton, Hyde and Glossop and Oldham Groups.

Application forms are obtainable from the Group Secretary, Ashton, Hyde and Glossop Hospital Management Committee, Astley-road, Stalybridge, Cheshire, to whom they should be returned not later than 20th August, 1953.

MANCHESTER REGIONAL HOSPITAL BOARD invite applications for the post of NON-RESIDENT SENIOR REGISTRAR in Psychiatry. The person appointed will be required to attend Consultant psychiatric clinics and take part in the treatment of inpatients and outpatients at hospitals in Bolton and Bury in association with the Consultant Psychiatrist. D.P.M. essential.

Forms of application may be obtained from the Senior Administrative Medical Officer, Manchester Regional Hospital Board, Cheetwood-road, Manchester, 8, and should be returned, with the names of 3 referees, to be received by 27th August, 1953.

MANCHESTER REGIONAL HOSPITAL BOARD invite applications for 3 posts of SENIOR REGISTRAR in Orthopædic Surgery as follows :—

(*a*) North Manchester and Manchester Babies' and Children's Groups of hospitals, mainly at Crumpsall Hospital and Booth Hall Children's Hospital (vacant 1st January, 1954).

(*b*) Salford Group of Hospitals (2 posts), mainly at Salford Royal Hospital (posts vacant on 1st November, 1953, and 1st January, 1954).

1 of the 2 posts in the Salford Group is a "transitional" post, tenable for 1 year with a possible extension for a second year, and applicants must either be in their fourth or subsequent year of training in a Senior Registrar post in orthopædic surgery or have occupied such a post for 3 or more years and vacated it since November, 1950. The other 2 posts are normal Senior Registrar appointments and arrangements may later be made for the successful applicants to transfer to the United Manchester Hospitals to continue training.

Forms of application may be obtained from the Senior Administrative Medical Officer of the Board, Cheetwood-road, Manchester, 8, and should be returned, with the names of 3 referees, to be received by 27th August, 1953.

MANCHESTER REGIONAL HOSPITAL BOARD invite applications for 3 posts of NON-RESIDENT SENIOR REGISTRAR in General Surgery as follows :—

(*a*) Salford Group of hospitals, mainly at Salford Royal Hospital.

(*b*) South Manchester Group of hospitals, mainly at Withington Hospital.

(*c*) Bury and Rossendale Group of hospitals, mainly at Bury General Hospital.

The post in the Bury and Rossendale Group is a "transitional" post, tenable for 1 year with a possible extension for a second year, and applicants must either be in their fourth or subsequent year of training in a Senior Registrar post in general surgery or have occupied such a post for 3 or more years and vacated it since November, 1950. The other 2 posts are normal Senior Registrar appointments and arrangements may later be made for the successful applicants to transfer to the United Manchester Hospitals to continue training.

Forms of application may be obtained from the Senior Administrative Medical Officer of the Board, Cheetwood-road, Manchester, 8, and should be returned, with the names of 3 referees, to be received by 24th August, 1953.

MANCHESTER. UNITED MANCHESTER HOSPITALS. MANCHESTER ROYAL EYE HOSPITAL. Applications are invited for RESIDENT MEDICAL STAFF (Senior House Officer grading—£670 p.a., less £130 p.a. for residential emoluments).

Application forms may be obtained from the undersigned.

H. R. NORTH, General Superintendent.

MANCHESTER. UNITED MANCHESTER HOSPITALS. MANCHESTER ROYAL EYE HOSPITAL. Applications are invited for the post of REGISTRAR (resident). Tenable for 12 months, subject to renewal. Previous experience in ophthalmology essential. The terms and conditions of service for hospital medical and dental staffs will apply.

Application forms may be obtained from the undersigned.

H. R. NORTH, General Superintendent.

MANCHESTER. UNITED MANCHESTER HOSPITALS. MANCHESTER ROYAL INFIRMARY, MANCHESTER, 13. REGISTRAR to a General Medical Unit, to commence as soon as possible. Whole-time non-resident appointment, for 12 months, renewable. Applicants must possess higher qualifications.

Applications to be made on forms obtainable from the undersigned and to be returned not later than 19th August, 1953.

G. H. TAYLOR, Secretary.

MANCHESTER. UNITED MANCHESTER HOSPITALS. MANCHESTER ROYAL INFIRMARY, MANCHESTER, 13. REGISTRAR to the Department of Diagnostic Radiology, to commence as soon as possible. Whole-time appointment for 12 months, renewable. Applicants must possess the D.M.R.D. or its equivalent.

Applications to be made on forms obtainable from the undersigned and to be returned not later than 19th August, 1953.

G. H. TAYLOR, Secretary.

MANCHESTER. WEST MANCHESTER HOSPITAL MANAGEMENT COMMITTEE. PARK HOSPITAL, DAVYHULME (General Hospital—426 Beds.)

1 SENIOR HOUSE OFFICER (general surgery). Post now vacant.

1 SENIOR HOUSE OFFICER (non-tuberculous thoracic surgery) for Manchester Regional Hospital Board Centre. Vacant mid-August, 1953.

1 HOUSE OFFICER (E.N.T. surgery). (Pre-registration.) Post now vacant.

General surgery posts recognised for F.R.C.S. examination.

Forms from Secretary.

MANCHESTER, 4. ANCOATS HOSPITAL. (General Hospital—152 Beds.) Applications are invited for the appointment of SENIOR HOUSE OFFICER (medicine) vacant on 5th August, 1953.

Applications, stating age, nationality, qualifications and dates, particulars of previous appointments with dates, along with the names and addresses of 2 referees, to be sent to the undersigned immediately.

A. T. SAMPSON, Group Secretary.

Crumpsall Hospital, Manchester, 8.

MANCHESTER, 10. MONSALL HOSPITAL FOR INFECTIOUS DISEASES, NEWTON HEATH. MANCHESTER BABIES' AND CHILDREN'S HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER required. Salary £670 p.a., less deduction of £155 p.a., for residence, &c.

Applications, together with names of 3 referees, to be sent as soon as possible to Physician-Superintendent.

MAIDSTONE. WEST KENT GENERAL HOSPITAL. (135 Beds.) MID-KENT HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the appointment of RECEIVING-ROOM OFFICER. Salary £670 a year, with deduction of £150 a year for residential emoluments.

Applications to the Administrative Officer at the Hospital as soon as possible.

MAIDSTONE. WEST KENT GENERAL HOSPITAL. (135 Beds.) MID-KENT HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the appointment of SENIOR HOUSE SURGEON. Post recognisable for the F.R.C.S.(Eng.). Salary £670 a year, with deduction of £150 a year for residential emoluments.

Applications to the Administrative Officer at the Hospital as soon as possible.

MAIDSTONE. KENT COUNTY OPHTHALMIC AND AURAL HOSPITAL. (113 Beds.) MID-KENT HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the appointment of SENIOR HOUSE OFFICER in the Ophthalmic Department of the above Hospital. The Hospital is recognised by the Examining Boards for the F.R.C.S. and the D.O. Appointment will be for 12 months. Salary £670 a year, less £150 a year for residential emoluments.

Applications, should be forwarded as soon as possible, to the Administrative Officer, Kent County Ophthalmic and Aural Hospital, Church-street, Maidstone.

MANSFIELD AND DISTRICT GENERAL HOSPITAL. (207 Beds.) MANSFIELD HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of HOUSE SURGEON (pre-registration or Senior House Officer post). Post recognised for F.R.C.S. examinations.

Applications, stating age and qualifications, together with copies of 2 recent testimonials, to be forwarded to Group Secretary, Mansfield Hospital Management Committee, Crow Hill-drive, Mansfield.

MANSFIELD AND DISTRICT GENERAL HOSPITAL. Applications are invited for the post of SENIOR HOUSE OFFICER to the Casualty and Orthopædic Department (1 of 2 posts). The post is recognised for F.R.C.S. regulations.

Applications, stating qualifications, age, experience, &c., to be forwarded to the Secretary, Mansfield Hospital Management Committee, Crow Hill-drive, Mansfield.

MANSFIELD AND DISTRICT GENERAL HOSPITAL. (207 Beds.) MANSFIELD HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of SENIOR HOUSE OFFICER in Anæsthetics (resident). The post is recognised for the D.A. Appointment will be for 1 year. Salary £670 p.a., with a deduction of £135 in respect of residential emoluments.

Applications, stating age, qualifications and experience, together with copies of 2 testimonials, should be forwarded to the undersigned immediately.

A. ASHWORTH, Group Secretary,
Mansfield Hospital Management Committee.
Oak Bank, Crow Hill-drive, Mansfield.

MITCHAM JUNCTION, SURREY. WANDLE VALLEY HOSPITAL. ST. HELIER GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications invited for the appointment of RESIDENT SENIOR HOUSE OFFICER (medical), vacant now. The Hospital contains 140 Beds for infectious diseases and geriatric cases.

Applications, stating age, qualifications, and experience, with copies of 2 testimonials, and the name of 1 referee, should be sent immediately to the Group Secretary, St. Helier Hospital, Carshalton, Surrey.

MITCHAM JUNCTION, SURREY. WANDLE VALLEY HOSPITAL. ST. HELIER GROUP HOSPITAL MANAGEMENT COMMITTEE. Locum RESIDENT SENIOR HOUSE OFFICER (medical) required now for an indefinite period. The Hospital contains 140 Beds for infectious diseases and geriatric cases.

Apply to Group Secretary, St. Helier Hospital, Carshalton, or telephone to the Physician-Superintendent at Wandle Valley Hospital (Mitcham 0824).

NORTH AND MID-CHESHIRE HOSPITAL MANAGE-MENT COMMITTEE. Applications are invited for the following vacant posts :—

Altrincham General Hospital, Altrincham, near Manchester (130 Beds)

SENIOR HOUSE OFFICER (surgical). Post recognised under F.R.C.S. regulations.

SENIOR HOUSE OFFICER (medical).

St. Anne's E.N.T. Hospital, Altrincham, near Manchester (53 Beds)

SENIOR HOUSE OFFICER. Post recognised for D.L.O. examinations.

JUNIOR HOUSE OFFICER.

Applications should be sent to the Group Secretary, The Hospital, Sinderland-road, Altrincham, Cheshire.

NEWPORT, MON. ROYAL GWENT HOSPITAL. (Recognised for F.R.C.S. ; 259 Beds—9 residents.) JUNIOR HOSPITAL MEDICAL OFFICER and SENIOR HOUSE OFFICER required shortly for Casualty Department. Senior Hospital Medical Officer in full-time charge of department, through which pass all medical and surgical emergencies. Excellent experience. Recognised F.R.C.S. for 6 months. Post reviewed annually for Junior Hospital Medical Officer and tenable 6 or 12 months as Senior House Officer as desired. Salary £700–£50–£1000 (Junior Hospital Medical Officer) or £670 (Senior House Officer), less £120 for board-residence.

Write, quoting 2 referees, to T. A. JONES.
64, Cardiff-road, Newport, Mon.

NEWPORT, I.W. ST. MARY'S HOSPITAL. (365 Beds.) ISLE OF WIGHT GROUP HOSPITAL MANAGEMENT COMMITTEE. CASUALTY OFFICER, vacant now. Salary £670, less £130 for accommodation and services. Model Casualty Department, newly constructed. Living accommodation for a married candidate would be made available if required.

Applications, with full details, to Chief Administrative Officer, Clatterford House, Carisbrooke, I.W.

NEWPORT, I.W. ST. MARY'S HOSPITAL. (365 Beds.) ISLE OF WIGHT GROUP HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER in Surgery. Salary £670 p.a. Applications are invited from registered medical practitioners.

HOUSE SURGEON. Post approved for Pre-registration Service. National salary scale and conditions. Vacant now.

Living accommodation for a married candidate would be made available if required.

Applications, stating age, nationality, qualifications, and experience, together with the names of 2 referees, to be sent as soon as possible to Chief Administrative Officer, Hospital Management Committee Headquarters, Clatterford House, Carisbrooke, I.W.

NEWMARKET GENERAL HOSPITAL, Newmarket, SUFFOLK. Applications are invited for the post of HOUSE SURGEON, available immediately. Duties include surgical house charge of general surgical, E.N.T. and eye beds. The post is tenable for 6 months and is resident. Salary in accordance with national scale, less £100 p.a. for board and residence.

Applications, together with copies of 3 testimonials, should be addressed to the Physician-Superintendent.

NEWMARKET GENERAL HOSPITAL, Newmarket, SUFFOLK. Applications are invited for the post of HOUSE PHYSICIAN, vacant now. Duties include house charge of acute general medical and tuberculosis beds with some opportunity for anæsthetics under the supervision of the Consultant in anæsthesia. The post is tenable for 6 months, salary in accordance with national scale, less £100 for board and residence.

Applications, with copies of 3 recent testimonials, should be addressed to the Physician-Superintendent.

NEWCASTLE REGIONAL HOSPITAL BOARD. East CUMBERLAND HOSPITAL MANAGEMENT COMMITTEE. REGISTRAR OBSTETRICIAN AND GYNÆCOLOGIST (resident or non-resident). The duties will be mainly at the City Maternity and City General Hospitals and the Cumberland Infirmary, Carlisle. The post is recognised for the M.R.C.O.G. Salary £775–£890. Appointment up to 31st August, 1954, in the first instance.

Applications, together with names and addresses of referees (preferably), or testimonials to a total of 3, to be sent to the Senior Administrative Medical Officer, "Blythswood South," Osborne-road, Newcastle upon Tyne, 2, within 14 days.

NEWCASTLE REGIONAL HOSPITAL BOARD. South WEST DURHAM HOSPITAL MANAGEMENT COMMITTEE. BISHOP AUCKLAND GENERAL HOSPITAL. Locum REGISTRAR SURGEON (resident) for approximately 2 months. Salary £16 per week.

Applications, together with names and addresses of referees (preferably), or testimonials to a total of 3, to be sent to the Senior Administrative Medical Officer, "Blythswood South," Osborne-road, Newcastle upon Tyne, 2, immediately.

NEWCASTLE. THE UNITED NEWCASTLE UPON TYNE HOSPITALS. ROYAL VICTORIA INFIRMARY. Applications are invited for the whole-time appointment of SENIOR REGISTRAR in the Department of Anæsthetics. The post, which is non-resident, except for rotational emergency duty, offers certain facilities for laboratory and clinical investigation. Applicants should have had considerable experience in anæsthesia and should hold the Diploma in Anæsthetics.

Applications, stating age, nationality, qualifications, and experience, with the names and addresses of 3 referees, should be sent to the undersigned within 2 weeks of the date of appearance of this advertisement.

A. W. SANDERSON, House Governor and Secretary.
Royal Victoria Infirmary, Newcastle upon Tyne.

NEWCASTLE. THE UNITED NEWCASTLE UPON TYNE HOSPITALS. Applications are invited for the non-resident appointment of SURGICAL REGISTRAR to the Ophthalmic Department of the Royal Victoria Infirmary. The post will offer scope to prepare for a higher degree. The appointment is for 1 year in the first instance and will be subject to Ministry of Health terms and conditions of service for hospital medical and dental staffs in the National Health Service.

Applications, giving full details, with the names and addresses of 3 referees, should be sent to the undersigned within 2 weeks of the date of appearance of this advertisement.

A. W. SANDERSON, House Governor and Secretary.
Royal Victoria Infirmary, Newcastle upon Tyne.

NEWCASTLE UPON TYNE HOSPITAL MANAGE- MENT COMMITTEE. Applications are invited from registered medical practitioners for the post of SENIOR HOUSE OFFICER (preferably resident) for the Eye Hospital and the Eye Unit at Walker Accident Hospital. The Eye Hospital has 34 Beds, with a very busy outpatient clinic and is recognised for the Diploma in Ophthalmology. Walker Accident Hospital has 21 Beds. Previous experience in ophthalmology will be an advantage, but is not essential. Salary in accordance with the terms and conditions of service of hospital medical and dental staffs.

Applications, with the names of 3 referees, should be sent to the Hospital Secretary, Eye Hospital, St. Mary's-place, Newcastle upon Tyne, 1, as soon as possible.

NEWCASTLE GENERAL HOSPITAL. (861 Beds.) NEWCASTLE UPON TYNE HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER (Geriatric Unit). The above resident post is now vacant.

Applications should be addressed to the Secretary, Newcastle General Hospital, Westgate-road, Newcastle upon Tyne, 4, together with 1 copy of 2 recent testimonials.

NEWCASTLE GENERAL HOSPITAL. (861 Beds.) NEWCASTLE UPON TYNE HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the resident post of SENIOR HOUSE OFFICER (Orthopædic Unit), which is now vacant. The appointment is tenable for 12 months in the first instance.

Applications should be addressed to the Secretary, Newcastle General Hospital, Westgate-road, Newcastle upon Tyne, 4, together with 1 copy of 2 recent testimonials by 20th August, 1953.

NEWCASTLE GENERAL HOSPITAL. (861 Beds.) NEWCASTLE UPON TYNE HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for a Whole-time SENIOR HOUSE OFFICER (pædiatrics), to the Children's Department in the above Hospital, to commence duty on 1st September, 1953. Salary is in accordance with the terms and conditions of service of hospital medical and dental staffs (England and Wales). This department is actively associated with the Department of Child Health of Durham University, and the post offers good opportunities for gaining experience in many aspects of pædiatrics The appointment is for 1 year in the first instance.

Applications, together with 1 copy of 2 testimonials, to be sent to the Secretary, Newcastle General Hospital, Westgate-road, Newcastle upon Tyne, 4.

NEWCASTLE GENERAL HOSPITAL. (861 Beds.) NEWCASTLE UPON TYNE HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the resident post of SENIOR HOUSE OFFICER (general surgical wards), which becomes vacant during August, 1953. The appointment is tenable for 12 months in the first instance. This post is recognised by the Royal College of Surgeons under the F.R.C.S. regulations.

Applications should be addressed to the Secretary, Newcastle General Hospital, Westgate-road, Newcastle upon Tyne, 4, together with 1 copy of 2 recent testimonials by 17th August, 1953.

NORWICH. NORFOLK AND NORWICH HOSPITAL. (440 Beds.) Applications are invited for the appointment of SENIOR HOUSE SURGEON to the Orthopædic Department. Salary £670 p.a., less £150 p.a. for full residential emoluments.

Applications, stating age, qualifications, experience, with names of 2 referees, to Secretary, Group 6 Hospital Management Committee, St. Stephen's-road, Norwich.

NORWICH. NORFOLK AND NORWICH HOSPITAL. (440 Beds.) EAST ANGLIAN REGIONAL HOSPITAL BOARD. ORTHOPÆDIC REGISTRAR. Post provides wide experience.

Applications, stating age, qualifications, and details of present and previous appointments, with names of 3 referees, to Secretary of Board, 117, Chesterton-road, Cambridge, by 24th August, 1953. Candidates invited to visit Hospital by direct arrangement with Hospital Management Committee Secretary at the Hospital.

NORWICH. WEST NORWICH HOSPITAL. Norfolk AND NORWICH HOSPITAL GROUP. EAST ANGLIAN REGIONAL HOSPITAL BOARD. REGISTRAR in Plastic Surgery. The Plastic Surgery Unit is to be extended to provide a treatment centre for burns. Post offers wide experience. Appointment for 1 year, renewable for second year.

Applications, stating age, qualifications, and details of present and previous appointments, together with names of 3 referees, to Secretary of Board, 117, Chesterton-road, Cambridge, by 24th August, 1953. Candidates invited to visit Hospital by direct arrangement with Hospital Management Committee Secretary, Norfolk and Norwich Hospital.

NOTTINGHAM GENERAL HOSPITAL. Applications are invited from registered medical practitioners for the post of ORTHOPÆDIC AND FRACTURE SENIOR HOUSE OFFICER. The post offers exceptional experience in traumatic and orthopædic surgery. Duties to commence as soon as possible. Salary and conditions of service in accordance with Ministry regulations. If resident £150 deducted for emoluments.

Applications, stating age, qualifications and experience, together with copies of testimonials, to be sent to—

HENRY M. STANLEY, Secretary.

NOTTINGHAM GENERAL HOSPITAL. Applications are invited for the post of RESIDENT CLINICAL PATHOLOGIST (Senior House Officer grade), vacant 1st October. Previous experience in pathology not essential. Opportunities for training in all branches of clinical pathology are afforded in a Department serving over 1200 Beds. Salary and conditions of service in accordance with Ministry regulations.

Applications, stating age, qualifications and experience, together with names and addresses of referees, to be sent to the undersigned before 22nd August.

HENRY M. STANLEY, Group Secretary.

NOTTINGHAM GENERAL HOSPITAL. Sheffield REGIONAL HOSPITAL BOARD. Whole-time RESIDENT or NON-RESIDENT REGISTRAR (orthopædics) required. Appointment for 1 year in first instance.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 17th August, 1953, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

NOTTINGHAM. CITY HOSPITAL. (823 Beds.) Applica- tions are invited for the post of SENIOR HOUSE OFFICER (surgical), vacant 1st September. The post is approved for F.R.C.S. The Officer appointed will be required to spend 6 months in general surgery, 3 months thoracic surgery and 3 months orthopædic and plastic surgery. Salary £670 p.a., less £145 p.a. for residential emoluments.

Applications, stating age, nationality, qualifications and experience, together with copies of not more than 3 testimonials, to be sent immediately to the Hospital Secretary, City Hospital, Hucknall-road, Nottingham.

NUNEATON. MANOR HOSPITAL. (139 Beds.) House SURGEON for general surgical duties including E.N.T. and ophthalmic work. Recognised for F.R.C.S.; pre-registration post.

Applications to the Hospital Secretary.

NUNEATON. MANOR HOSPITAL. (139 Beds.) Applications are invited for the post of HOUSE PHYSICIAN (32 general medical beds). Post vacant 1st August.

Applications to the Hospital Secretary.

OLDHAM. BOUNDARY PARK GENERAL HOSPITAL. (390 Beds—Recognised for F.R.C.S.) Applications are invited for the appointment of HOUSE SURGEON (general—recognised for pre-registration purposes), vacant immediately.

Applications, containing details of qualifications and experience, together with copies of 2 recent testimonials and quoting Ref. No. B/112, should be forwarded to the Group Secretary, Oldham and District Hospital Management Committee, Central Offices, Rochdale-road, Oldham.

OLDHAM ROYAL INFIRMARY. (190 Beds—Recognised for F.R.C.S.) Applications are invited for the appointment of HOUSE SURGEON (general—recognised for pre-registration purposes), vacant immediately.

Applications, containing details of qualifications and experience, together with copies of 2 recent testimonials and quoting Ref. No. B/113, should be forwarded to the Group Secretary, Oldham and District Hospital Management Committee, Central Offices, Rochdale-road, Oldham.

PENZANCE. WEST CORNWALL HOSPITAL. (General—100 Beds.) WEST CORNWALL HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from pre-registration graduates or qualified medical practitioners for the post of HOUSE SURGEON.

Applications, stating age, nationality, qualifications and experience, and enclosing copies of 2 recent testimonials, should be forwarded to the Hospital Secretary, West Cornwall Hospital, Penzance.

PETERBOROUGH MEMORIAL HOSPITAL AND ANNEXES. EAST ANGLIAN REGIONAL HOSPITAL BOARD. MEDICAL REGISTRAR. Post provides experience in general medicine, pædiatrics and infectious diseases. Appointment for 1 year, renewable for second year.

Applications, stating age, qualifications, and details of present and previous appointments, with names of 3 referees, to Secretary of Board, 117, Chesterton-road, Cambridge, by 17th August, 1953. Candidates invited to visit hospitals by arrangement with Hospital Management Committee Secretary at the Hospital.

PLYMOUTH. SOUTH DEVON AND EAST CORNWALL HOSPITAL. Applications invited from registered medical practitioners for the appointments of :—

(1) SENIOR HOUSE OFFICER to Casualty and Fracture Department, Greenbank Road Section, vacant immediately.

(2) SENIOR HOUSE OFFICER in Surgery, Greenbank Road Section, vacant 9th October, 1953, recognised for the Fellowship of the Royal College of Surgeons.

(3) RESIDENT ANÆSTHETIST, Greenbank Road Section, vacant immediately, recognised for the D.A.

(4) HOUSE SURGEONS, Greenbank Road Section, vacancies 13th September, 17th and 20th October, 1953, recognised for the Fellowship of the Royal College of Surgeons.

(5) SENIOR HOUSE OFFICER in Surgery, Freedom Fields Section, vacant immediately, recognised for the Fellowship of the Royal College of Surgeons.

(6) HOUSE PHYSICIAN, Freedom Fields Section, vacant 1st September, 1953.

(7) HOUSE OFFICER in Obstetrics, Alexandra Maternity Home, Devonport, vacant immediately.

Applications, stating age, nationality, qualifications, and experience, with the names of 3 referees, to be sent to the undersigned as soon as possible.

ARTHUR R. CASH, Group Secretary.

7, Nelson-gardens, Stoke, Devonport.

PORTSMOUTH GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the following appointments :—

St. Mary's Hospital (General Hospital with 150 surgical beds—recognised for the F.R.C.S.)

SENIOR HOUSE OFFICER (Casualty and Orthopædic Departments), vacant now.

HOUSE PHYSICIAN, vacant 10th September.

Royal Portsmouth Hospital (General Hospital with 70 surgical beds and 68 orthopædic beds—recognised for the F.R.C.S.)

HOUSE SURGEON (general surgery and orthopædics), vacant 15th August.

Queen Alexandra Hospital (124 surgical beds and 21 E.N.T. beds)

SENIOR HOUSE SURGEON (E.N.T. and general surgery), vacant 8th September.

Applications, stating age, experience and qualifications, together with the names of 2 referees, should be submitted as soon as possible to E. H. HURST.

35, Grove-road South, Southsea.

PORTSMOUTH GROUP HOSPITAL MANAGEMENT COMMITTEE. INFECTIOUS DISEASES HOSPITAL. (310 Beds.) Applications are invited for the appointment of HOUSE PHYSICIAN, whose work will comprise duties in both infectious diseases and tuberculosis wards.

Applications, stating age, experience, and qualifications, and names of 2 referees, should be submitted as soon as possible to—

35, Grove-road South, Southsea. E. H. HURST.

PRESTON (near). WHITTINGHAM HOSPITAL. MANCHESTER REGIONAL HOSPITAL BOARD. Applications are invited for the post of REGISTRAR (psychiatry) at above Hospital. Salary £775–£890 p.a. Appointment is subject to terms and conditions of service of hospital medical and dental staffs (England and Wales). A charge of £175 p.a. will be made for board, residence, and laundry.

Applications, endorsed "Medical Officer," giving details of experience and names and addresses of 3 referees, should be addressed to the Chairman, Whittingham Hospital, near Preston, and be received as soon as possible.

PONTYPOOL AND DISTRICT HOSPITAL, Pontypool, MON. (115 Beds.) JUNIOR HOSPITAL MEDICAL OFFICER (surgical). This is the senior resident post. 2 House Surgeons and a House Physician also resident. Salary £700–£50–£1000, less £150 board-residence.

Write, quoting 2 referees, to T. A. JONES.

64, Cardiff-road, Newport, Mon.

ROMFORD, ESSEX. OLDCHURCH HOSPITAL. Applications are invited from registered medical practitioners for the post, now vacant, of SENIOR HOUSE OFFICER (resident) for duties in the Casualty and Admissions Department at the above Hospital. This is a large general hospital, with specialised departments dealing with all types of acute medical and surgical cases. The post affords good opportunity for gaining tuition and experience.

Applications should be addressed immediately to the Secretary of the Romford Group Hospital Management Committee, Oldchurch Hospital, Romford, stating age, nationality, qualifications, experience, and 2 testimonials of recent date or names of 2 referees.

ROMFORD, ESSEX. OLDCHURCH HOSPITAL. (722 Beds.) Applications are invited for the post of RESIDENT HOUSE SURGEON in the General Surgical Unit. Recognised for F.R.C.S. 6 months appointment. This very active General Surgical Unit of approximately 100 Beds affords ample opportunity for candidates to obtain first-class tuition and experience.

Applications, stating age, nationality, qualifications with dates, and details of experience, together with copies of 2 recent testimonials or names of 2 referees, should be sent immediately to the Group Secretary, Romford Group Hospital Management Committee, Oldchurch Hospital, Romford.

ROMFORD, ESSEX. OLDCHURCH HOSPITAL. (722 Beds.) Applications are invited from registered medical practitioners for the post of SENIOR HOUSE OFFICER in the Department of Ophthalmology.

Applications, stating age, qualifications, present appointment and experience with dates, together with copies of 2 testimonials of recent date or names of 2 referees, should be sent immediately to the Group Secretary, Romford Group Hospital Management Committee, Oldchurch Hospital, Romford.

ROMFORD, ESSEX. OLDCHURCH HOSPITAL. (722 Beds.) Applications are invited from registered medical practitioners for the post of SENIOR HOUSE OFFICER in Pathology in this large General Hospital containing well-equipped laboratory where excellent opportunities exist for gaining extensive experience.

Applications, stating age, nationality, qualifications with dates, and experience, together with copies of 2 recent testimonials or names of referees, should be sent immediately to the Group Secretary, Romford Group Hospital Management Committee, Oldchurch Hospital, Romford.

ROMFORD, ESSEX. RUSH GREEN HOSPITAL. (247 Beds.) Applications are invited from medical registered practitioners for the resident post of SENIOR HOUSE OFFICER in Anæsthetics at the above Hospital, vacant from 21st September, 1953. Good experience in anæsthetics for general surgery, gynæcology, and E.N.T. modern equipment.

Applications, stating age, nationality, qualifications with dates, present appointment and experience, should be addressed to the Medical Superintendent as soon as possible. Applicants may see the Hospital by arrangement. (Tel. : Romford 7711.)

ROMFORD, ESSEX. RUSH GREEN HOSPITAL. (247 Beds.) Applications are invited from registered medical practitioners for the post of RESIDENT SENIOR HOUSE SURGEON, vacant from 25th September, 1953. Recognised for F.R.C.S.

Applications, stating age, nationality, qualifications with dates, and experience, together with copies of 2 recent testimonials or names of 2 referees, should be sent immediately to the Medical Superintendent. (Tel. : Romford 7711.)

ROMFORD, ESSEX. VICTORIA HOSPITAL. (91 Beds.) Applications are invited from registered medical practitioners (Male) for the post of RESIDENT HOUSE PHYSICIAN vacant from 16th August, 1953. The duties will include experience in gynæcology. 6 months appointment.

Applications, stating age, nationality, qualifications with dates, and experience, together with copies of 2 recent testimonials or names of 2 referees, should be sent immediately to the Secretary, Romford Group Hospital Management Committee, Oldchurch Hospital, Romford.

REDHILL. EAST SURREY HOSPITAL, Shrewsbury-road, REDHILL, SURREY. (139 Beds.) REDHILL GROUP HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER (Male). Duties mainly surgical, with some medicine.

Apply, stating the names of 2 referees or testimonials, to Hospital Secretary.

ROCHDALE AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. CHEST DISEASES. JUNIOR HOSPITAL MEDICAL OFFICER required now for work in sanatoria and chest clinics.

Apply to the Group Secretary, Central Offices, Birch Hill Hospital, Rochdale.

ROCHDALE. BIRCH HILL HOSPITAL. (General—951 Beds.) ROCHDALE AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER (anæsthetics). Appointment for 1 year and post recognised for D.A.

Applications to Group Secretary, Central Offices, Birch Hill Hospital, Rochdale, not later than 15th August, 1953.

RYDE, I.W. ROYAL I.W. COUNTY HOSPITAL. CASUALTY OFFICER/ORTHOPÆDIC HOUSE SURGEON (Senior House Officer grade—£670 p.a.). Active Surgical Department with considerable amount of traumatic surgery, with care of orthopædic beds.

Applications, stating age, qualifications, experience and names of 2 referees, to Group Secretary, Hospital Management Committee, Clatterford House, Carisbrooke, I.W.

REDRUTH. CAMBORNE-REDRUTH HOSPITAL. (151 Beds—4 Residents.) WEST CORNWALL HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER (surgical) required for the above Hospital. Post vacant 7th August, 1953. This is a general hospital with a great variety of cases. The post gives good experience in diagnosis, operative and postoperative treatment, and in actual operative procedure to the candidate.

Applications, stating age, experience and nationality, together with references, to Hospital Secretary, Camborne-Redruth Hospital, Redruth, Cornwall.

SCOTLAND. NORTHERN REGIONAL HOSPITAL BOARD. Applications are invited for a whole-time post of MEDICAL REGISTRAR at the Inverness Hospitals. The duties are mainly at Raigmore Hospital, Inverness.

Schedules of application and further particulars are obtainable from the undersigned, with whom applications should be lodged by 29th August, 1953. A. M. FRASER, M.D.
Secretary and Administrative Medical Officer.
Office of the Northern Regional Hospital Board,
Raigmore, Inverness.

SCUNTHORPE, LINCS. WAR MEMORIAL HOSPITAL. (269 Beds.) SCUNTHORPE HOSPITAL MANAGEMENT COMMITTEE. Immediate vacancy for HOUSE SURGEON (Senior House Officer grade), mainly general surgery and some gynæcology.

Applications, stating age, qualifications, and naming 2 referees, to Group Secretary.

SCUNTHORPE, LINCS. WAR MEMORIAL HOSPITAL. (269 Beds.) SCUNTHORPE HOSPITAL MANAGEMENT COMMITTEE. Vacancy for CASUALTY OFFICER (Senior House Officer grade) offering good experience in busy department serving an industrial area.

Applications, stating age, qualifications, and naming 2 referees, to Group Secretary.

SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time NON-RESIDENT REGISTRAR (anæsthetics) required at the City General Hospital, Sheffield. This is a large general hospital with a Department of Thoracic Surgery, a Regional Cardiological Centre and a Professorial Gynæcological Unit. Appointment for 1 year in first instance.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 17th August, 1953, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time SENIOR REGISTRARS in Psychiatry required for Bracebridge Heath Hospital, near Lincoln, The Pastures Hospital, Mickleover, near Derby, and The Towers Hospital, Humberstone, near Leicester. Posts non-resident at Bracebridge Heath Hospital and the Towers Hospital; accommodation for single or married person available at the Pastures Hospital. Appointments for 1 year in the first instance reviewable annually. Opportunity for research and experience in those special branches of psychiatry available in the Hospital area.

Application forms and details of posts obtainable from Senior Administrative Medical Officer, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield. Forms to be returned by 17th August, 1953.

SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time NON-RESIDENT SENIOR ORTHOPÆDIC REGISTRAR (transitional appointment) required for 1 year only at Doncaster Royal Infirmary. Terms as recently agreed by the Ministry of Health and the profession. Applications invited from Senior Orthopædic Registrars in fourth or subsequent years and from those who held such posts for 3 or more years but vacated them after 1st January, 1951.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, 10, by 17th August, 1953, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time Locum REGISTRAR (orthopædics) required at Grimsby General Hospital for the period 17th–26th August, 1953. Remuneration at rate of £16 per week with a deduction if resident.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, naming 2 referees.

SHEFFIELD. THE UNITED SHEFFIELD HOSPITALS. Applications are invited for the following posts:—

(*a*) SENIOR REGISTRAR, (*b*) REGISTRAR, (*c*) SENIOR HOUSE OFFICER in the Department of Neurosurgery, Royal Infirmary.

The appointments are non-resident.

(*d*) NON-RESIDENT SENIOR HOUSE OFFICER in the Thoracic Unit, Royal Infirmary.

(*e*) RESIDENT SENIOR HOUSE OFFICER or HOUSE OFFICER in E.N.T. Department, Royal Hospital. Post now vacant.

Applications, stating age, qualifications, and experience, with the names of 3 referees, should be sent immediately as follows:—

For posts (*a*), (*b*), and (*c*) to the Chief Administrative Officer, The United Sheffield Hospitals, West-street, Sheffield, 1; post (*d*) to the Superintendent, Royal Infirmary, Sheffield, 6; post (*e*) to the Superintendent, Royal Hospital, Sheffield, 1.

Copy testimonials may be sent for posts (*d*) and (*e*).

SHREWSBURY. ROYAL SALOP INFIRMARY. (241 Beds.) SHREWSBURY GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from general registered practitioners (Male or Female) for the appointment of RESIDENT HOUSE SURGEON in General Surgery. Vacant immediately, and tenable in the first instance for 6 months. Recognised for the F.R.C.S., and approved for pre-registration service. Salary and conditions of service in accordance with national scale.

Applications with references, should be sent to—
J. P. MALLETT, Group Secretary,
Group 15 Hospital Management Committee.
Royal Salop Infirmary, Shrewsbury, 27th July, 1953.

SHREWSBURY. ROYAL SALOP INFIRMARY. (241 Beds.) SHREWSBURY GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from registered medical practitioners for the appointment of ORTHOPÆDIC/ACCIDENT HOUSE SURGEON (Senior House Officer). The successful applicant will be allowed to attend for 2 days a month at The Robert Jones and Agnes Hunt Orthopædic Hospital, Oswestry, for postgraduate study with the Consultant. The post is recognised under the revised Fellowship regulations in respect of the 6 months training required of candidates for the Final Fellowship examination.

Applications, stating age, qualifications, nationality and experience, accompanied by copy testimonials, should be sent to—
J. P. MALLETT, Group Secretary,
Group 15 Hospital Management Committee.
Royal Salop Infirmary, Shrewsbury, 10th July, 1953.

SHREWSBURY. ROYAL SALOP INFIRMARY AND COPTHORNE HOSPITAL. (500 Beds.) SHREWSBURY GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of GYNÆCOLOGICAL HOUSE SURGEON (Male or Female). There are 50 gynæcological beds and 2 House Surgeons. The post is recognised for the M.R.C.O.G.

Applications, stating age, qualifications, nationality and experience, accompanied by copy testimonials, should be sent to—
J. P. MALLETT, Group Secretary,
Group 15 Hospital Management Committee.
Royal Salop Infirmary, Shrewsbury, 10th July, 1953.

SHERBORNE. YEATMAN HOSPITAL. (60 Beds.) HOUSE OFFICER required, preferably Female. Post now vacant and tenable for 6 months.

Applications, giving details of age, experience, qualifications and nationality, together with copies of testimonials, to Group Secretary, West Dorset Group Hospital Management Committee, Damers-road, Dorchester, Dorset, immediately.

SOUTHAMPTON GENERAL HOSPITAL. (80 surgical beds.) HOUSE SURGEON (resident) required early September. Post tenable for 6 months. Recognised for F.R.C.S. and for Pre-registration Service.

Applications, with copies of testimonials, should be forwarded as soon as possible to the Group Secretary, Southampton Group Hospital Management Committee, Bullar-street, Southampton.

SOUTHAMPTON GROUP HOSPITAL MANAGEMENT COMMITTEE. HOUSE PHYSICIAN (resident) required for duties in the Southampton Group of Hospitals, from 1st September. Post tenable 6 months.

Applications, with copies of testimonials, should be forwarded as soon as possible to the Secretary, Southampton Group Hospital Management Committee, Bullar-street, Southampton.

SOUTHAMPTON. ROYAL SOUTH HANTS HOSPITAL. (278 Beds.) CASUALTY OFFICER/SENIOR HOUSE OFFICER (orthopædic) required for the above Hospital (Orthopædic Unit, 74 Beds). This Hospital is the centre to which all trauma from a large industrial town and port is directed, thus providing excellent experience in the treatment of traumatic conditions.

Applications, with copies of testimonials, to be submitted as soon as possible to the Secretary, Southampton Group Hospital Management Committee, Bullar-street, Southampton.

SOUTHAMPTON. ROYAL SOUTH HANTS HOSPITAL. (278 Beds.) Recognised for F.R.C.S. CASUALTY OFFICER (Senior House Officer grading) required for the above Hospital.

Applications, with copies of testimonials, to be submitted as soon as possible to the Secretary, Southampton Group Hospital Management Committee, Bullar-street, Southampton.

SOUTHAMPTON. ROYAL SOUTH HANTS HOSPITAL. (278 Beds.) ORTHOPÆDIC HOUSE SURGEON required. Post tenable 6 months. This Hospital is the centre to which all trauma from a large industrial town and port is directed, thus providing excellent experience in the treatment of traumatic conditions; patients with orthopædic conditions are also drawn from a wide area.

Applications, with copies of testimonials, should be sent as soon as possible to the Group Secretary, Southampton Group Hospital Management Committee, Bullar-street, Southampton.

SOUTH LINCOLNSHIRE AREA. Sheffield Regional HOSPITAL BOARD. Whole-time RESIDENT REGISTRAR (chest diseases) required. Duties will include work at Lincoln Isolation and Chest Hospital and Branston Sanatorium as well as attending associated Chest Clinics under Consultant supervision. There will be a limited amount of work with infectious diseases at the former hospital. Appointment for 1 year in first instance.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 24th August, 1953, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

STOKE-ON-TRENT. CITY GENERAL HOSPITAL. STOKE-ON-TRENT HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of HOUSE OFFICER (medical), 4 posts vacant shortly. Posts recognised for experience during pre-registration period.

Apply, with copy testimonials, stating age, nationality, and full details of previous service, to the Group Secretary, Hospital Management Committee, Princes-road, Stoke-on-Trent.

STOKE-ON-TRENT. CITY GENERAL HOSPITAL. STOKE-ON-TRENT HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the appointments of HOUSE SURGEONS (Male or Female), pre-registration posts. 3 posts becoming vacant during the months of August and September and tenable for 6 months. Posts approved for F.R.C.S. examination.

Applications, stating age, nationality and qualifications with dates, together with copy testimonials, to the Group Secretary, Stoke-on-Trent Hospital Management Committee, Princes-road, Stoke-on-Trent, as soon as possible.

STOKE-ON-TRENT. CITY GENERAL HOSPITAL. STOKE-ON-TRENT HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of SENIOR HOUSE OFFICER (general surgery). Recognised for F.R.C.S.

Applications, stating age, nationality, and full details of previous experience, to the Group Secretary, Hospital Management Committee, Princes-road, Stoke-on-Trent.

STOKE-ON-TRENT. NORTH STAFFORDSHIRE ROYAL INFIRMARY. STOKE-ON-TRENT HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of HOUSE OFFICER (medical) pre-registration post, vacant 1st September, 1953.

Applications, giving full details, together with copy testimonials, to the Group Secretary, Hospital Management Committee, Princes-road, Stoke-on-Trent.

STAFFORD. STAFFORDSHIRE GENERAL INFIRMARY. (159 Beds—Recovery Unit 32 Beds.) STAFFORD HOSPITAL MANAGEMENT COMMITTEE. HOUSE SURGEON (Male or Female). Post recognised for Pre-registration Service and for F.R.C.S.Eng.

Applications, giving full particulars, together with copies of 3 recent testimonials, to be forwarded to the Group Secretary, 13, Foregate-street, Stafford.

STAFFORD HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER (anæsthetics), Male or Female. Recognised for D.A. Post now vacant. Duties mainly at the General Infirmary, Stafford, which is the main and acute general hospital of the Group.

Applications, with copies of 3 testimonials, to the Group Secretary, Stafford Hospital Management Committee, 13, Foregate-street, Stafford.

STOCKPORT. STEPPING HILL HOSPITAL. (464 Beds.) Applications are invited for the post of SENIOR HOUSE OFFICER (Assistant Resident Surgical Officer). The post is recognised for the F.R.C.S.

Applications, stating age, experience and qualifications, together with copies of 2 testimonials, to be addressed to the Secretary, Stockport and Buxton Hospital Management Committee, 59B, Shaw-heath, Stockport, Cheshire, immediately.

STRATFORD-ON-AVON HOSPITAL, Arden-street, STRATFORD-ON-AVON. Locum SURGICAL OFFICER (Senior House Officer) required for 3 weeks from 24th August.

Applications to Hospital Secretary.

ST. ALBANS CITY HOSPITAL. (372 Beds.) North West METROPOLITAN REGIONAL HOSPITAL BOARD. Whole-time GYNÆCOLOGICAL AND OBSTETRIC REGISTRAR required for duties mainly at the above Hospital which may be visited by direct appointment.

Application forms obtainable from, and returnable to, the Group Secretary, St. Albans City Hospital, Normandy-road, St. Albans, Herts, by 14th August, 1953.

SWANSEA HOSPITAL. (403 Beds.) Glantawe Hospital MANAGEMENT COMMITTEE. Registered medical practitioners are invited to apply for the non-resident appointment of SENIOR HOUSE OFFICER in the Orthopædic Department of Swansea Hospital. The Hospital is recognised for Part II of the Diploma in Physical Medicine.

Applications, stating age, qualifications and experience, should be addressed to— O. C. HOWELLS, Secretary,
Glantawe Hospital Management Committee.
Swansea Hospital, St. Helen's-road, Swansea.

SWANSEA HOSPITAL. (403 Beds.) Glantawe Hospital MANAGEMENT COMMITTEE. Registered medical practitioners are invited to apply for the resident post of SENIOR HOUSE OFFICER in the E.N.T. Department of the above Hospital. The Hospital is recognised under the regulations of the F.R.C.S. (E.N.T.) and the D.L.O.

Applications, stating age, qualifications and experience, should be forwarded to O. C. HOWELLS, Group Secretary.
St. Helen's-road, Swansea.

SWANSEA HOSPITAL. (403 Beds.) Glantawe Hospital MANAGEMENT COMMITTEE. Applications are invited from registered medical practitioners for the posts (2) of RESIDENT ANÆSTHETISTS (Senior House Officer grade). The Hospital is recognised under the D.A. regulations.

Applications, stating age, qualifications and experience, should be addressed to— O. C. HOWELLS, Group Secretary,
Glantawe Hospital Management Committee.
St. Helen's-road, Swansea.

SWANSEA. MOUNT PLEASANT HOSPITAL. (276 Beds.) GLANTAWE HOSPITAL MANAGEMENT COMMITTEE. Registered medical practitioners are invited to apply for the resident appointment of JUNIOR HOSPITAL MEDICAL OFFICER for work in the Medical and Surgical Departments, and in the chronic sick wards of the above Hospital.

Applications, stating age, experience and qualifications, should be addressed to—
O. C. HOWELLS, Group Secretary,
Glantawe Hospital Management Committee.
St. Helen's-road, Swansea.

SWANSEA. MORRISTON HOSPITAL. (450 Beds.) GLANTAWE HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from registered medical practitioners for the resident appointment of SENIOR HOUSE OFFICER in the Casualty Department, with duties in the Orthopædic Department.

Applications, stating age, qualifications and experience, should be addressed to the Medical Superintendent, Morriston Hospital, Swansea. O. C. HOWELLS, Group Secretary.

SWANSEA. MORRISTON HOSPITAL. (450 Beds.) GLANTAWE HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from registered medical practitioners for the resident appointment of SENIOR HOUSE OFFICER in the Surgical Unit at the above Hospital.

Applications, stating age, qualifications and experience, should be addressed to the Medical Superintendent, Morriston Hospital, Swansea. O. C. HOWELLS, Group Secretary.

TAPLOW, near MAIDENHEAD. CANADIAN RED CROSS MEMORIAL HOSPITAL. HOUSE SURGEON required for post vacant 29th August, 1953; post recognised for the F.R.C.S. Preference will be given to persons seeking a pre-registration House Officer post under the Medical Act, 1950. Salary on national scale.

Applications, stating age, experience, and qualifications with dates, together with copies of 2 testimonials, should be sent to the Hospital Secretary immediately.

TRURO. ROYAL CORNWALL INFIRMARY. (General Hospital—212 Beds. 9 Residents.) WEST CORNWALL HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the 2 posts of SENIOR RESIDENT HOUSE OFFICER to the Orthopædic and Traumatic Department. This is a large and busy centralised unit with 2 Consultants, 64 Beds, and Outpatient Departments also 45-Bed Rehabilitation Annexe which deal with the whole of the West Cornwall Area. The posts are now vacant, and are tenable for 1 year.

Applications, stating age, nationality, qualifications and experience, and accompanied by copies of 2 recent testimonials, should be forwarded to the Hospital Secretary, Royal Cornwall Infirmary, Truro, without delay.

TRURO. ROYAL CORNWALL INFIRMARY. (212 Beds. 9 residents.) WEST CORNWALL HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the newly created office of SENIOR HOUSE OFFICER (Pathological Department).

Applications, stating age, qualifications, and experience, and enclosing copies of 2 recent testimonials, should be sent to the Hospital Secretary, Royal Cornwall Infirmary, Truro.

WARRINGTON GENERAL HOSPITAL. Applications are invited for the post of SENIOR HOUSE OFFICER (pædiatrics), Male or Female, which will become vacant in early October next. Post recognised for D.C.H. Commencing salary £670 p.a., less £130 for residential emoluments.

Applications to be forwarded to—
H. L. BOOT, Group Secretary,
Warrington and District Hospital Management Committee.
c/o General Hospital, Warrington.

WARRINGTON INFIRMARY. (172 Beds.) Applications are invited for a vacancy at the above Hospital for a RESIDENT HOUSE SURGEON (Male or Female). Salary will be £350–£450 p.a., less a deduction of £100 for full residential emoluments.

Applications should be sent to—
H. L. BOOT, Group Secretary,
Warrington and District Hospital Management Committee.
c/o General Hospital, Warrington, Lancs.

WARWICKSHIRE. SOUTH WARWICKSHIRE HOS-PITAL GROUP (NO. 14). Applications are invited from general practitioners for appointment of CLINICAL ASSISTANT in E.N.T. Department. Duties mainly at Warneford Hospital, 4 notional half-days per week. E.N.T. experience and qualification desirable. Salary at the rate of £175 p.a. per notional half-day.

Applications to the Group Secretary, 87, Radford-road, Leamington Spa.

WARWICK HOSPITAL, Lakin-road, Warwick. (265 Beds.) SOUTH WARWICKSHIRE HOSPITAL GROUP (NO. 14). Applications are invited for the appointment of CASUALTY OFFICER (Male or Female), Senior House Officer grade. The post is suitable for one reading for higher qualifications and offers facilities for contact with all Specialist Units in the Hospital.

Applications, together with 2 testimonials, to be sent to the Administrative Officer, Warwick Hospital, Warwick, as soon as possible.

WARWICK HOSPITAL. Applications are invited for the resident appointment of PÆDIATRIC HOUSE OFFICER (Male or Female) vacant 1st August. This post is recognised for pre-registration. 30-Bedded Pædiatric Unit. The Hospital is recognised for D.C.H.

Applications, with 2 recent testimonials, to the Administrative Officer, Warwick Hospital, Lakin-road, Warwick.

WARWICK (near). CENTRAL MENTAL HOSPITAL. SENIOR HOUSE OFFICER required in this Mental Hospital of 1400 Beds with Neurosis Unit, 4 adult and 2 child Psychiatric Clinics recognised for the D.P.M., and Departments of Electroencephalography, Occupational Therapy, Psychology and Social work. Salary £670 p.a. A modern house is available. Rental (inclusive of rates), £95 p.a.

Applications, together with the names and addresses of 3 referees, to the Medical Superintendent within 14 days of the appearance of this advertisement.

WINDSOR. KING EDWARD VII HOSPITAL. Obstetric AND GYNÆCOLOGICAL HOUSE SURGEONS required (Male or Female). Posts vacant, 1 on 30th September, and 1 immediately. Salary on national scale. The successful candidates will be resident at the Old Windsor Unit of the Hospital. Applicants are required to be members of a Medical Protection Society.

Applications, with copies of recent testimonials or names of 3 referees, stating age, nationality, qualifications with dates, to be sent to the Hospital Secretary by 28th August.

WHITEHAVEN HOSPITAL, Cumberland. (109 Beds and Annexe of 19 Beds.) HOUSE SURGEON for Orthopædic and Casualty Departments (House Officer or Senior House Officer grade), vacant now.

Detailed applications, with dates and copies of 2 testimonials, to Secretary.

WIGAN. ROYAL ALBERT EDWARD INFIRMARY. (200 Beds.) WIGAN AND LEIGH HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER in Orthopædic Surgery required for duties at the above Hospital. Post now vacant.

Applications, stating age, nationality, and previous hospital appointments, together with the names of 2 referees, should be forwarded to the Secretary, Wigan and Leigh Hospital Management Committee, Knowsley House, Wigan, as early as possible.

WIGAN. ROYAL ALBERT EDWARD INFIRMARY. (200 Beds.) HOUSE SURGEON (Male or Female) required at the above Hospital. House Officer grade post, recognised for the F.R.C.S. examination. Post now vacant. Approved pre-registration post.

Applications, stating age, qualifications, &c., together with the names of 2 referees, should be received by the Secretary, Wigan and Leigh Hospital Management Committee, Knowsley House, Wigan, as soon as possible.

WELSH REGIONAL HOSPITAL BOARD. Applications are invited for the appointment of a REGISTRAR in E.N.T. Surgery to serve the Caernarvon and Anglesey Hospital Management Committee. The successful candidate will be based on the Caernarvon and Anglesey General Hospital, Bangor. There are ample opportunities for practical work and research. The post is non-resident and subject to review at the end of the first year.

Forms of application should be obtained from the Senior Administrative Medical Officer, Welsh Regional Hospital Board, Cathays Park, Cardiff, within 14 days of appearance of this advertisement.

WESTON-SUPER-MARE GENERAL HOSPITAL. (110 Beds.) Applications are invited from registered medical practitioners for the resident appointment, immediate vacancy, of HOUSE SURGEON (first, second, or third post). The appointment will be for a period of 6 months in the first instance and may be renewed for a further 6 months.

Applications, stating age, qualifications and experience, together with names and addresses of 2 referees should be addressed to the Secretary, Weston-super-Mare Hospital Management Committee.

WINCHESTER. ROYAL HAMPSHIRE COUNTY HOSPITAL. (311 Beds.) SENIOR HOUSE OFFICER (orthopædics) required immediately. Appointment for 6 months in the first instance.

Applications, with copies of 2 testimonials, to the Secretary.

WINCHESTER. ROYAL HAMPSHIRE COUNTY HOSPITAL. (311 Beds.) HOUSE OFFICER (gynæcology) required, vacant mid-September. The hospital is recognised by the Royal College.

Applications, with copies of 2 testimonials, to the Secretary.

WOKING AND CHERTSEY GROUP HOSPITAL MANAGEMENT COMMITTEE. ST. PETER'S HOSPITAL, CHERTSEY (430 Beds: late Botley Park War Hospital), and ROYAL SURREY COUNTY HOSPITAL, GUILDFORD (229 Beds), SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. The post of Full-time REGISTRAR to the E.N.T. Departments of the above hospitals will be vacant on 1st October, 1953.

Application forms can be obtained from, and should be returned by 22nd August to, the Group Secretary, Huntington, Guildford-road, Chertsey. The hospitals may be visited by arrangement (Tel. No's. : St. Peter's—Ottershaw 441 ; Royal Surrey County—Guildford 2323).

WOLVERHAMPTON HOSPITAL MANAGEMENT COMMITTEE GROUP NO. 16 BIRMINGHAM REGION.

The Royal Hospital, Wolverhampton (an Associated Hospital of the University of Birmingham Medical School)
SENIOR HOUSE OFFICER or HOUSE OFFICER (Fracture and Orthopædic Department), vacant now.
HOUSE OFFICER (anæsthetics), vacant now. Appointment recognised for D.A.
HOUSE OFFICER (Casualty Department), vacant now.

Wolverhampton and Midland Counties Eye Infirmary
HOUSE OFFICER, vacant now. Appointment recognised for F.R.C.S. and D.O. examinations.

Applications, with copies of 3 recent testimonials, to be sent to W. COCKBURN, Group Secretary.
The Royal Hospital, Wolverhampton.

WORCESTER. RONKSWOOD HOSPITAL. Applications are invited for the post of SENIOR HOUSE OFFICER in Surgery which is now vacant. The appointment is tenable for 1 year and is subject to the terms and conditions of service for hospital medical staff.

Applications, with copies of 3 testimonials, should be sent to the Hospital Secretary.

WORCESTER. RONKSWOOD HOSPITAL. Applications are invited for the post of RESIDENT ANÆSTHETIST which is now vacant. The post is of Senior House Officer status. The holder may expect a reasonable proportion of emergency work. Conditions in accordance with terms and conditions of service for hospital medical staff.

Applications, with copies of testimonials, should be sent to the Hospital Secretary.

YORKSHIRE. EAST RIDING HOSPITAL MANAGEMENT COMMITTEE.

Westwood Hospital, Beverley, Yorks (218 Beds)
(*a*) ORTHOPÆDIC HOUSE SURGEON (Senior House Officer). Recognised for F.R.C.S. Vacant now.

East Riding General Hospital, Driffield, Yorks (249 Beds)
(*b*) HOUSE SURGEON (first, second, or third post), vacant now. Pre-registration post. Recognised for F.R.C.S. General surgical duties.

Northfield Sanatorium, Driffield, Yorks (78 Beds)
(*c*) HOUSE PHYSICIAN (first, second, or third post). General Sanatorium treatment. Provision may be made available for thoracic surgery, pathological experience, and M.M.R. Unit. Time for study.

Salary for (*a*) is £670 p.a., less £140 for board and lodging ; and for (*b*) and (*c*) £350–£450 p.a., less £100 for board and lodging. Fully qualified practitioners may also apply for the pre-registration post.

Detailed applications to Secretary, Westwood Hospital, Beverley, Yorkshire.

DOUGLAS. NOBLE'S ISLE OF MAN HOSPITAL. (160 Beds.) Applications are invited for the post of HOUSE SURGEON at this busy general hospital. The post becomes vacant at the end of August, 1953, and offers wide experience in congenial surroundings. Salary at the rate of £350, £400, or £450 a year according to experience, subject to a deduction of £100 a year in respect of residential emoluments. 4 residents on the staff. The appointment is tenable for 6 months in the first instance.

Applications, giving full particulars, with copies of 2 recent testimonials, to the Secretary, Noble's Hospital, Douglas, Isle of Man.

DOUGLAS. NOBLE'S ISLE OF MAN HOSPITAL. (160 Beds.) Applications are invited for the post of RESIDENT ANÆSTHETIST at this busy Hospital. The post, which becomes vacant at the end of August, 1953, offers varied experience in pleasant surroundings. 4 residents on the staff. Salary at the rate of £350, £400, or £450 a year according to experience. A deduction of £100 a year made in respect of residential emoluments. Duties may include acting in the medical wards or casualty. The appointment is tenable for 6 months in the first instance.

Applications, giving full particulars, with copies of 2 recent testimonials, to the Secretary, Noble's Hospital, Douglas, Isle of Man.

CHANNEL ISLANDS, JERSEY. GENERAL HOSPITAL. Applications are invited for the post of RESIDENT SURGICAL OFFICER at the above Hospital. Previous experience is essential. The Hospital has 200 Beds and is recognised as a training Hospital for the F.R.C.S. Post is vacant on 1st October, 1953. The appointment is for 6 months in the first instance, but is renewable for a further 6 months. Salary £700 p.a., less £100 for residential emoluments.

Applications to be submitted not later than 22nd August, 1953, to the President, Public Health Committee, General Hospital, Jersey, C.I.

NORTHERN IRELAND FEVER HOSPITAL MANAGEMENT COMMITTEE. RESIDENT HOUSE PHYSICIANS (2) required immediately.

Applications to the Secretary, Northern Ireland Fever Hospital Management Committee, Purdysburn, Belfast.

NEW ZEALAND. THE OTAGO HOSPITAL BOARD. SENIOR ANÆSTHETIC REGISTRAR, Dunedin Hospital, New Zealand, ASSISTANT LECTURER in Anæsthetics, University of Otago. Applications are invited for the above position, from those who hold a degree in Medicine of an approved University. The appointment is a full-time one commencing on 1st January, 1954. Salary scale in accordance with the Hospital Employment (Medical Officers') Regulations, 1952, viz. : £863 15s.–£978 15s. p.a., plus £179 8s. p.a. living-out allowance. Further information relating to this appointment may be obtained from the Office of the High Commissioner for New Zealand, 415, The Strand, London, W.C.2, or from THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

Applications, stating age, qualifications, and postgraduate experience, together with testimonials, health and radiological certificates, should be in the hands of the Secretary of the Board not later than 10 A.M. on Monday, 24th August, 1953.

W. A. WILLIAMSON, Secretary.

P.O. Box 946, Dunedin, New Zealand.

CANADA. WOMEN'S COLLEGE HOSPITAL, Toronto, CANADA. Applications from Women are invited for the REGISTRARSHIP at the Women's College Hospital, Toronto, Ontario, Canada. This is a 150-Bed hospital which is in the process of expansion, staffed entirely by women. Work consists of supervision of Junior House Doctors, experience in surgery and medicine and also some obstetrics. Salary of $100 per month paid. Tourist passage would be paid one way for chosen applicant.

Address application to Miss DOROTHY MACHAM, Superintendent.
Women's College Hospital.

NEW YORK. NEW ROCHELLE HOSPITAL, New ROCHELLE, NEW YORK, U.S.A. (360-Bed general community hospital.) Approved by American College of Surgeons; American Medical Association for Interneship and Residency Training. Only graduates from approved university schools accepted. INTERNES—$100 per month, plus full maintenance.

Apply Superintendent.

Public Appointments

COMMISSIONS IN THE ROYAL AIR FORCE MEDICAL BRANCH. Vacancies occur from time to time for short-service commissions for periods of 3, 4, or 5 years on the active list followed by 4 years of reserve service. Applications can be considered now for commissions of 4 or 5 years duration, and there will probably be vacancies for direct entry 3-year short-service commissions early in 1954.

Further information may be had from the Under-Secretary of State, Air Ministry (M.A.1), Awdry House, Kingsway, W.C.2.

CARDIFF. CITY OF CARDIFF. Public Health Department. Applications are invited from registered medical practitioners, holding the D.P.H. or D.C.H. qualification, for appointment as ASSISTANT MEDICAL OFFICER (Male) in the Public Health Department. Duties comprise general health, port, maternity and child welfare, and school health work. Medical Council "C" salary scale—£950–£50 p.a.–£1300 p.a. with placing according to experience. The post is superannuable and appointment subject to passing a medical examination.

Forms of application (returnable to him not later than the 14th September, 1953) can be obtained from the Medical Officer of Health, City Hall, Cardiff. Canvassing will disqualify.

S. TAPPER-JONES, Town Clerk.

City Hall, Cardiff, 29th July, 1953.

HER MAJESTY'S COLONIAL SERVICE. Nigeria. Applications are invited from Doctors with medical qualifications registrable in the United Kingdom and with at least 1 years experience after qualification for the following posts in the Medical Department of the Government of Nigeria :—

(*a*) MEDICAL OFFICERS, for general duties in preventive and curative medicine which may include purely rural health work, involving much travelling.

(*b*) MEDICAL OFFICERS OF HEALTH. Duties as under (*a*). In addition the selected officers would undertake the control of sanitary matters, and may be required to perform the duties of Port Health Officer at a sea or air port. Candidates should possess a Diploma in Public Health. A Diploma in Tropical Hygiene, though not essential, is desirable.

Appointments may be made as follows :—

(*a*) on 3 years probation for permanent and pensionable employment in the Colonial Medical Service, with retiring age of between 45 and 55. Pensions are at the rate of 1/600th of final pensionable emoluments for each completed month of reckonable service ;

(*b*) from the National Health Service. Candidates may resign from the National Health Service but retain their superannuation rights during their time in Nigeria (up to 6 years) and receive a resettlement grant of 20% of the aggregate of their Colonial salary on leaving Nigeria at the end of their engagement ; or

(*c*) on short-term contract (2–4 tours of 18 months duration) with inclusive salary of from £1087 p.a. rising to £2000 p.a. ; on completion of contract a gratuity is paid at the rate of £37 10s. for each completed period of 3 months service (including leave).

Officers appointed under (*a*) or (*c*) are required to contribute to a Widows' and Orphans' Pension Scheme. Salaries, including pensionable expatriation pay for Officers appointed under (*a*) or (*b*) range from £950 to £1850 p.a. Starting salary in all cases depends on experience and war service. Quarters are provided at low rents. Free passages in both directions are provided for Officer and his wife. Payment of the cost actually incurred on 1 outward and 1 homeward passage for each of 2 children under age of 18, subject to maximum of £75 in respect of the return journey for each child, is also granted. Income-tax at local rates. Local leave is permissible and generous home leave is granted after each tour of 18 months duration.

Application forms can be obtained from the Director of Recruitment (Colonial Service), Colonial Office, Sanctuary Buildings, Great Smith-street, London, S.W.1 (quoting reference No. CDE./117/14/01).

KENT EDUCATION COMMITTEE. Applications are invited for the appointment of ASSISTANT COUNTY MEDICAL OFFICER (Male or Female) in the North East Kent Area. The salary scale is £950–£50–£1300 a year. The commencing salary will be fixed at a point on the scale according to the experience and qualifications of the successful candidate. The appointment is superannuable and the successful candidate will be required to pass a medical examination. The duties are mainly in the School Health and Child Welfare Services and experience in the classification of educationally subnormal children will be an advantage.

Applications, stating age, qualifications, and experience, accompanied by the names and addresses of 2 persons to whom reference may be made as to professional ability and character, should be addressed to the County Medical Officer, County Hall, Maidstone, not later than 20th August.

A. ELLIOTT, M.D., School Medical Officer.

County Hall, Maidstone, 28th July, 1953.

LANCASHIRE COUNTY COUNCIL. Registered medical practitioners required for appointment of ASSISTANT DIVISIONAL MEDICAL OFFICERS in areas adjacent to Blackburn, Bury, Fleetwood, Ormskirk/Southport. Possession of D.P.H. desirable. Salary £950–£50–£1300 p.a. Travelling and subsistence allowances where applicable. Posts superannuable and subject to medical examination.

Application form and further particulars obtainable from County Medical Officer, East Cliff County Offices, Preston.

MIDDLESEX COUNTY COUNCIL. County Health DEPARTMENT. AIRPORT MEDICAL OFFICER (Male) required at London and Northolt Airports for Control Service. Duties also include medical examination of air crews, industrial medical service for airport employees, treatment of accident casualties and such other duties as may be required from time to time. Shift duties necessary to provide 24-hour service every day. Salary £850–£50–£1150 p.a. inclusive (now under review —MDC Circ. No. 17). Car allowance payable, if approved, as Treasury scale. Unestablished, subject to medical assessment and prescribed conditions, which include, prior to appointment, vaccination against smallpox and annually thereafter.

Apply (no forms) stating age, qualifications, experience, names of 2 referees, to County Medical Officer(S), 3, 5, and 7, Old Queen-street, S.W.1, by 22nd August (quoting M.297L). Canvassing disqualifies.

CLIFFORD RADCLIFFE, Clerk of the County Council.

WARWICK. COUNTY OF WARWICK. Borough of NUNEATON, URBAN DISTRICT OF BEDWORTH, AND RURAL DISTRICT OF ATHERSTONE. Applications are invited from suitably qualified medical practitioners for the combined appointments of MEDICAL OFFICER OF HEALTH for the Borough of Nuneaton, the Urban District of Bedworth, and the Rural District of Atherstone. The successful candidate will also be appointed Area Medical Officer for Health and School Medical Services under the Warwickshire County Council for the same Area. Aggregate inclusive salary £1737 10s. rising to £2112 10s. p.a.

Further particulars and conditions of appointment obtainable from the Town Clerk, Council House, Nuneaton. Closing date for applications, Wednesday, 26th August, 1953.

STAFFORDSHIRE COUNTY COUNCIL. Applications are invited from fully qualified medical practitioners for the appointments of ASSISTANT MEDICAL OFFICERS and those holding the Diploma of Public Health will be given preference. The candidates appointed will undertake clinical work in the School Health and Child Welfare Services under the direction of the County Medical Officer of Health and will be required to perform such other duties as may from time to time be prescribed. The salary scale is £950 p.a., rising by annual increments of £50 to a maximum of £1300 p.a., and previous similar service may be taken into consideration when deciding the commencing rate. Each selected candidate may be required to provide a motor-car, for which allowances will be paid in accordance with the County Council scale. A lodging allowance of 25s. per week and return railway fare home every 2 months will be paid for a maximum period of 6 months where the successful candidate is married and has to continue to maintain a home outside the geographical County while seeking housing accommodation. Each appointment will be terminable by 1 months notice in writing on either side and subject to the provisions of the appropriate superannuation acts and regulations, in which connection the selected candidates must pass a medical examination and submit their birth certificates.

Forms of application may be obtained from the undersigned and should be returned to the County Medical Officer of Health, County Buildings, Stafford, not later than 29th August, 1953, together with copies of not more than 3 recent testimonials.

T. H. EVANS, Clerk of the County Council.

County Buildings, Stafford, 27th July, 1953.

General Practice

For an Executive Council post (England and Wales) apply on form E.C.16A obtainable from the council. Mark envelope "Vacancy."

FINCHLEY. Applications invited for Vacancy. List at present approximately 1500. Practice premises may be available. Apply on E.C.16A before 15th August, 1953, to—

F. J. ASHFORD, Middlesex Executive Council.

Gloucester House, Gloucester-gate, London, N.W.1.

YORKSHIRE. WEST RIDING. Applications are invited for a VACANCY (urban). List at present approximately 4600. Apply on Form E.C.16A to the undersigned, from whom further particulars may be obtained, not later than 22nd August, 1953.

C. H. STABLER, Clerk,
West Riding Executive Council.

5, St. John's-north, Wakefield, Yorks.

Hospital Services : Non-Medical Appointments

NEWPORT, MON. ST. WOOLOS HOSPITAL. (General Hospital of 379 Beds.) Vacancies exist in the Department of Pathology for a CHIEF LABORATORY TECHNICIAN and a SENIOR LABORATORY TECHNICIAN. Candidates should hold a F.I.M.L.T. or its equivalent. National salary scale.

Apply, stating age, experience, and names of 3 referees, also if wishing to be considered for 1 or both posts, to T. A. JONES. 64, Cardiff-road, Newport, Mon.

Miscellaneous

To non-professional posts the Notification of Vacancies Order 1952 applies

AMENDED ADVERTISEMENT

Gold Coast. Port of Tema. During the construction of this port the Consulting Engineers require a British medical officer with experience in tropical diseases, preferably associated with labour forces. Contract 12–15 months, renewable after 2 months leave ; project 4 years. Salary £2000–£2500 p.a., according to qualifications, with free furnished quarters, transport and passage, including wife, and children below 14 years. Duties include planning and organisation of medical facilities as well as clinical and administrative work of hospital to be built.—Applications (closing date 29th August, 1953), quoting 3 names for reference purposes, to : Address, No. 834, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

Radiotherapist. There is a vacancy for an Assistant, with a view to a partnership, in South Africa. The salary during the period of assistantship, and the terms of the partnership, will depend on experience and qualifications. The commencing salary offered is £2500–£3500, depending on qualifications. Applicants should have the necessary qualifications for the Register of Specialists in South Africa. Full personal and professional details are requested. The Advertiser will be available for interviews in London from the middle of August to the middle of September.—Address, No. 824, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

Croydon, Surrey. Nursing-home containing 22 rooms. Maximum 42 patients. Property held on full repairing lease. Rent £475 p.a., rising to £500 p.a. Price for lease (approximately 9 years unexpired), furniture, fittings, and goodwill, £5750.—Further details from HAROLD WILLIAMS & PARTNERS, Chartered Surveyors, 80, High-street, Croydon (CRO. 1931).

Freehold Property for investment and use. Front line S.E. coast town over 30 years in part dental and medical use now available for purchaser. 4 floors and basement. Hall floor free with consulting- waiting-rooms and offices. Remainder fully let. Restored and outside painted.—Inquiries by letter. Box No. 11/11, W. H. SMITH & SON, Robertson-street, Hastings.

Microscopes. Secondhand bargains, guaranteed sound order. Deferred terms if desired. Write for lists.—WALLACE HEATON LTD., 127, New Bond-street, W.1.

Applicants for posts requiring testimonials copied or duplicated should communicate with MANTON SECRETARIAL SERVICE, LTD., 98, Victoria-street, S.W.1 (Phone : VICtoria 0141), who are specialists in this kind of work.

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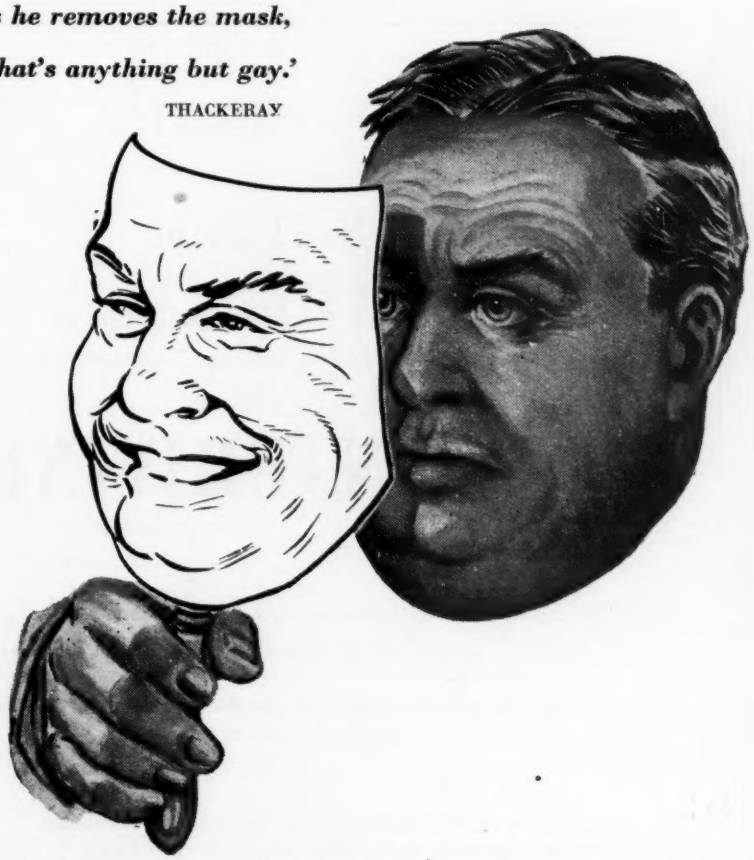
'And, when he's laughed and said his say,
He shows, as he removes the mask,
A face that's anything but gay.'

THACKERAY



Overeating is often an expression of inward uneasiness. Many fat people, despite their outward appearance of joviality, are anxious and unhappy and find in food a solace for their troubles. They try to hide themselves behind a 'wall of fat' and a façade of jolliness.

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Given before meals it curbs the appetite and, by relieving the emotional tension that may be at the back of the patient's habit of overeating, helps him to eat less.

'DRINAMYL'

Each 'Drinamyl' Tablet contains 5 mg. 'Dexedrine' and 32 mg. amylobarbitone. Issued in bottles of 50 tablets.

an aid in the treatment of overweight

MENLEY & JAMES, LIMITED, COLDHARBOUR LANE, LONDON, S.E.5

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and

CONJUNCTIVITIS

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ANTISTIN - PRIVINE

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ANTISTIN *controls the allergic factor* and with the prolonged decongestant action of PRIVINE ensures *relief for several hours* after each application.

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Antistin-Privine contains 0.5% w/v 2-phenylbenzylaminomethyl imidazoline sulphate and 0.025% w/v 2-(naphthylmethyl)-imidazoline nitrate.

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